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IMPROVING SHIPBOARD SUPPLY MANAGEMENT IN THE COAST
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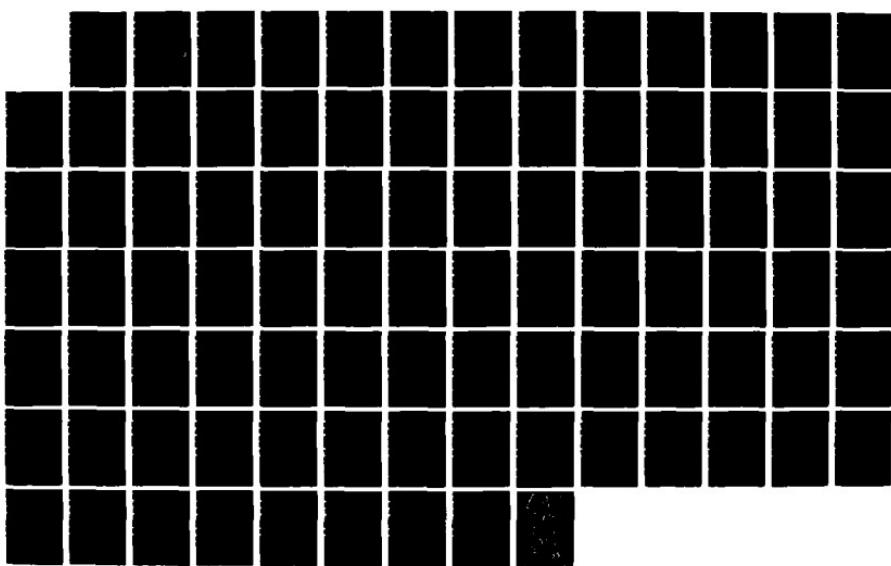
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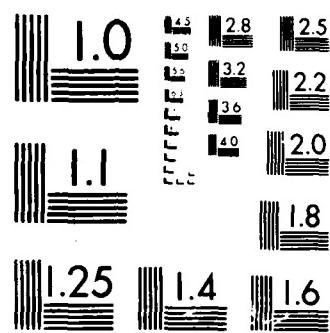
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IMPROVING SHIPBOARD SUPPLY
MANAGEMENT IN THE COAST GUARD

Report CG701R1

October 1987

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Executive Summary

IMPROVING SHIPBOARD SUPPLY MANAGEMENT IN THE COAST GUARD

The development of supply management policy is centralized in Coast Guard Headquarters. Technical direction and management systems for its execution, however, are decentralized and fragmented. On board the Coast Guard's major cutters, spares and repair parts for naval, ordnance, and electronics maintenance are separately stored and managed by their respective department heads. Normally only general supplies are managed by the supply officer. Shipboard supply operations, procedures, and methods of execution may vary from District to District and, in some cases, between ships in the same District.

While this approach to shipboard supply management has served the Coast Guard's needs for many years, circumstances now call for a more structured and centrally directed approach. More expensive and complex spares and repair parts for new high-technology equipment installed on ships require earlier, more extensive planning for initial provisioning, procurement, and stock replenishment. Ships spending longer periods away from home port and procurement rules that are more restrictive make local purchase a less frequent option for obtaining materiel. Audit and inspection reports on supply support are critical of current means for shipboard allowance management, materiel accountability, and supply system effectiveness. Ships entering extended overhaul or modernization are found to be carrying large amounts of excess or outdated spares and repair parts.

To improve supply management aboard the major cutters we recommend that the Coast Guard:

- Centralize supply management for the full range of spares, repair parts and general supplies under the ship's Supply Department.
- Develop mandatory allowances of spares and repair parts to be stocked on major cutters in addition to demand-supported nonallowance items.
- Centralize configuration status accounting and allowance maintenance under the ship's Supply Officer.

- Establish billets on the Hamilton and Polar class cutters for a Supply Department head at a grade 02/03 and a fiscal and supply (F&S) warrant officer as assistant supply officer; and on other major cutters, establish a billet for an F&S warrant officer as a Supply Department head.
- Establish a formal training program and career pattern for supply management officers and F&S warrant officers.
- Transfer responsibilities for nonsupply tasks from the shipboard Storekeeper to a shoreside support unit.
- Designate a single Headquarters proponent for an automated shipboard supply management system.

Above the shipboard level, we find problems like those aboard ship that are caused by decentralized supply management. To gain the full benefits of centralized management, additional changes are needed in the Coast Guard's approach to supply and maintenance management above the ship. We recommend organization and function changes including the establishment of a Materiel Management Center and Materiel Management Detachments, to integrate management of supply, maintenance and procurement (other than major projects acquisition) throughout the Coast Guard organization.

The traditional decentralized approach to supply and maintenance support can no longer be counted on to enable equipment, ships, and shore installations to achieve their designed capability and accomplish their assigned missions. Adoption of our recommendations will improve the Coast Guard's peacetime operational capabilities and wartime military readiness.

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R/S
Distribution/		
Availability Codes		
Avail and/or		
Dist	Special	
A-1		

CHAPTER 1

OVERVIEW

INTRODUCTION

Supply management in the Coast Guard traditionally has been centralized for policy but decentralized for procedures and execution. Each Headquarters (HQ) level staff office has planned and directed the portion of the supply system needed for its operational support responsibility. The Coast Guard's three inventory control points (ICPs) have received technical direction for supply management from the HQ's program or support managers responsible for electronics, general, naval (ship's hull, mechanical, and electrical), aviation, and aids-to-navigation supplies. On board the cutters, repair parts and spares for naval, ordnance, and electronics maintenance have been separately managed by their respective department heads while management of general supplies, requisitioning, and local purchase have been under the control of the cutter's supply officer. From HQ to the ship, supply management has been performed without reference to, or integration by, a single manager.

While this approach to supply management sufficed for many years, there are strong indicators of a need for a more formal, efficient, and centrally directed approach to supply management:

- Repair parts and spares requirements for new high-technology equipment, changes in contracting rules, and longer periods away from home ports add to a growing concern for the capability of a decentralized supply management structure to provide timely and efficient support under a full range of operating conditions.
- Audit and inspection reports on supply support to the current operating units raise questions about the ability of a decentralized supply management organization to effectively support new ships as well as those returned to the fleet after extensive renovation and modernization.

The Coast Guard requested LMI to examine the Coast Guard supply management process from the HQ level to the shipboard level and to recommend changes in policy, responsibility, and organization structure for management of the

supply function. We focus on the supply function because it is a critical activity. Its criticality stems from its interrelationship with the maintenance, manpower, training, and finance functions and the impact supply support has on equipment capability and operational readiness.

Levels of Analysis

We elected to start our analysis at the shipboard level for several reasons:

- Organizational changes have recently occurred or are being planned at the levels above the ship:
 - ▶ The Districts have been reorganized, and a Maintenance and Logistics Command (MLC) has been activated in each of the two Area Commands.
 - ▶ The HQ office staff responsibility and technical control of two of the ICPs are being evaluated for realignment.
 - ▶ HQ functions and responsibilities are being studied for reorganization and restructuring. Concurrently, planning for restructuring of major units under the HQ is occurring.
- Recommended policy changes affecting shipboard supply management are at various stages of processing through the HQ offices.
- Supply-related automated management systems that duplicate existing shipboard systems capability are being developed while automated system capability needed aboard the ships is being excluded.
- Supply management changes being considered for use aboard ship directly affect the organizational structure for supply support at levels above the ship.

In this report we concentrate on supply management aboard the Coast Guard's major cutters. Our primary recommendations are directed to shipboard supply management. Secondary recommendations deal with changes in policy and responsibility for supply management at levels above the ship.

SHIPBOARD SUPPLY MANAGEMENT

Shipboard supply management involves the providing of general supplies, repair parts, and spares; it is also interrelated with purchasing, budgeting and budget execution reporting, and equipment/equipage/property accounting and reporting. The personnel responsible for managing the supply operation should be

trained to perform particular tasks to prescribed standards and to do so by using a centrally developed set of automated or manual procedures.

Although supply management is generally viewed as a staff activity, its interrelationship with the other logistics functions at the shipboard level so heavily influences mission capability and systems readiness that it takes on the nature of a line or operational activity. Effective supply support is needed to achieve and sustain military readiness and multimission capability. It is critical to maintaining a high level of operational readiness while under way and keeping cutters on schedule for deployment after planned maintenance availability periods.

AREAS OF ANALYSIS

The primary areas of concern are supply management organization, management and funding of allowances, and the management of configuration changes.¹ Issues in those areas are interrelated and interdependent and deal with the operational integration of the essential shipboard elements of the supply process: supplies receipt, storage, and issue; equipment/equipage/property accounting and reporting; repair parts and spares usage history recording and reporting; budgeting and budget execution and reporting; purchasing and requisitioning; and operating the manual and automated systems to record the results. Embedded in the issues is the adequacy of the manpower and training to execute and manage shipboard supply operations. Because the ship is not an independent island of operation, the issues extend to shoreside operations and up the technical or command channel through the intermediate level to the HQ.

Main Issues

Our analysis of supply management aboard ship focuses on four main issues:

- The method of organization and control
- The management of allowances for repair parts and spares

¹The terms "configuration status accounting" and "configuration management" are often used interchangeably in the Coast Guard to describe the system and procedures for recording, reporting, and exchanging information related to equipment and equipage aboard ship.

- The funding to replenish the allowance quantity of essential repair parts and spares
- The accounting and reporting of the equipment/equipage/property that create the ship's configuration.

Additionally, we look at the two primary resources that directly affect the efficiency and effectiveness of supply management – the manpower responsible for managing and operating the shipboard supply system and the automated systems aboard the ship that provide the information processing capability.

Objective

Our objective is to determine the policies and responsibilities that provide the best shipboard supply management and identify the changes required to implement those policies and assign those responsibilities. We are specifically concerned with determining whether the policies and responsibilities should provide for:

- Centralized or decentralized supply management
- Mandatory or discretionary stockage of repair parts and spares
- Central or shipboard budgeting and funding of replenishment repair parts and spares
- Single or multiple department responsibility for equipment/equipage/property management
- Single or multiple supply-related automated systems for shipboard use.

Our concern for the primary resources is to determine their adequacy – the adequacy of the manpower skills and training to manage and execute the shipboard supply function and the adequacy of the automated systems to record and process the information needed by the supply management staff.

SUMMARY OF CONCLUSIONS

Deficiencies in Coast Guard shipboard supply management are apparent in many ways: required parts and supplies are not in stock, while unnecessary items occupy storeroom space; emergency local purchase and local scrounging are frequently necessary; maintenance officers and technicians must spend an inordinate time procuring repair parts and spares; quantities in allowance documents are not trusted; overbuying takes place and creates excess stocks; fund

shortages cause delays in replenishment of needed items; and equipment/equipage validations indicate notable differences from recorded information.

Our interviews with officials aboard ship and at the ICPs disclose a further and significant insight: each believes the other is guilty of poor supply management and is the cause of the problem aboard ship. The ICPs feel that incomplete information from the ships prevents the ICPs from stocking parts, increasing stock levels, and changing allowance lists. The ship's staff believes that poor response from the ICPs forces them to purchase or scrounge parts from nearby sources, forgo equipment change reports, and ignore allowance change requests. The supply management function must be effectively performed by both components if the supply system is to support the operational requirements.

We reached the following conclusions on the basis of our examination and analysis of Coast Guard shipboard supply management:

- The existing decentralized approach to shipboard supply management is neither an efficient nor an effective organizational structure.
- The multiple commodity-oriented manual allowance lists containing both required stockage and recommended stockage items are neither widely used nor well maintained, and do not generate the desired availability level of supplies.
- The absence of supply management makes the budget forecast and fund utilization processes an imprecise and low-value effort for shipboard operations.
- The configuration status accounting and reporting process and the validation of information for equipment/equipage/property are inconsistently applied and are given low priority.
- Manpower and training programs for the shipboard supply personnel are incomplete and inadequate, and the Storekeeper's (SK's) skills list has too many nonsupply tasks.
- A number of supply-related automated systems are in use or under development that duplicate functional management capability.
- A mechanism is needed to enable the management levels above shipboard to communicate with the shipboard automated supply support systems in order to provide for management review and oversight by electronic means.

MAJOR RECOMMENDATIONS

To improve supply management aboard the major cutters, the Coast Guard must change policies, responsibilities, organization, manpower and training, and automated information processing systems. We offer the following major recommendations to bring those changes into being:

- Centralize supply management for the full range of repair parts, spares, and general supplies under the ship's Supply Department.
- Require the ship to stock (on hand or on order) repair parts and spares centrally designated as mandatory stockage allowance items. Based on recorded usage history, provide for shipboard stockage of demand-supported nonallowance items.
- Budget and fund the replenishment of mandatory allowance items at the MLC level.
- Centralize configuration status accounting and reporting and maintenance of allowance documentation under the ship's Supply Department.
- Establish as an objective an annual 100 percent reconciliation of the equipment/equipage/property aboard the ship.
- Establish billets in the Supply Departments on the Hamilton and Polar class cutters for a supply officer department head and a fiscal and supply (F&S) warrant assistant supply officer, and on other major cutters, establish an F&S warrant supply officer billet.
- Establish a formal basic training plan and career pattern for supply management officers and F&S warrant officers, and a supply intern program aboard the Hamilton and Polar class cutters for F&S warrant officers selected for supply officer duty on other major cutters.
- Transfer the nonsupply tasks from the SK's responsibilities list to a shoreside support unit.
- Establish a single HQ proponent for automated systems development and performance.

REPORT ORGANIZATION

The remainder of this report amplifies the findings and conclusions (Chapter 2) and the recommendations (Chapter 3) and presents the following four appendices:

- Appendix A describes the current shipboard supply system and fundamental problems in its execution.

- Appendix B presents a conceptual organization structure for integrated supply and maintenance management at levels above the shipboard level. It describes the organizations and the functions they perform that bring about implementation of the major recommendations to improve the efficiency and effectiveness of the supply support system.
- Appendix C describes the current manpower and training program for supply management, analyzes that program, and presents recommendations for changes and a plan to implement those changes. Appendix C also presents a short discussion of a concept for developing a small group of Coast Guard logisticians to assist in future implementation of an integrated logistics support concept of management for top-level acquisition and sustaining systems managers.
- Appendix D is a glossary of acronyms and abbreviations.

A specific note on Appendices B and C. They describe two conceptual support systems that are essential to supply management aboard ship, and as such, they affect all levels of Coast Guard supply operations. They will be referred to and addressed again in a future report on policy, oversight, and review. This report provides the opportunity to include them and thus place our shipboard supply recommendations into a larger frame of reference. It also offers the opportunity to develop them to the extent necessary to show their relationship to other major support structures.

CHAPTER 2

FINDINGS AND CONCLUSIONS

This chapter presents the major findings and conclusions of the study. It is based on the detailed information presented in the appendices and treats the key elements we find central to effective and efficient shipboard supply management:

- Supply control organization
- Configuration status accounting
- Allowance management and funding
- Manpower and training
- Automated information systems.

These elements are closely interrelated in the context of shipboard supply management. Decentralized shipboard supply management, for example, affects all elements. Thus, some repetition of the findings and conclusions is to be expected.

SHIPBOARD SUPPLY MANAGEMENT ORGANIZATION

Our major conclusion after review and analysis of the Coast Guard shipboard supply management organization is that the decentralized approach in which several departments are responsible for supply management is neither an efficient nor effective organizational structure.

Aboard ship, supply tasks are assigned to a Supply Department and to several maintenance-related functional departments. The Supply Department usually prepares orders and budgets for general supplies, manages the Military Standard Requisitioning and Issue Procedures (MILSTRIP) requisition process, authorizes local procurements, and manages the personal property account. Maintenance-related departments usually perform those supply tasks considered most critical to the success of the ship's mission, and those tasks are usually managed by the functional department manager. They include allowance program management, repair parts and spares management and control, configuration status accounting, and configuration audits. Generally, only nonmaintenance-related supply is

assigned to the F&S warrant officer who, sometimes only on the basis of his title, is the resident expert in supply management.

We found that the allocation of responsibility for shipboard tasks is inconsistent from ship to ship in the Coast Guard. On most of the large ships, a number of supply tasks are assigned to the Supply Department, while on smaller vessels, supply tasks are limited to processing requisitions and local purchase requests. On no Coast Guard ships is responsibility for the full range of supply functions assigned to a single department.

The current distribution of shipboard supply management responsibility to functional managers aboard Coast Guard vessels contributes to the following operating conditions:

- Stock records are kept in separate departments. This decentralization limits the visibility of on-board stocks and causes duplicate requisitions, local purchases when stocks may already be on hand, and eventually the build-up of excess stocks as each department provides for its own needs.
- An inordinate amount of technical supervisor's time is devoted to obtaining supplies. Much of that time goes to locating commercial sources for repair parts. Time is spent away from the ship either scrounging for repair parts or shopping in local stores for emergency purchases.
- No standard procedures exist for compiling usage data for standard items and items purchased locally. Thus, no frequency or quantity of usage data are available for use in adding items to shipboard stockage.
- Inventory control and security of materiel are difficult because of the number of personnel who have access to storage areas and the number of storage areas on the vessel.
- Identical supply tasks are performed by each of several functional departments. This method of management is inefficient because it precludes any benefits to be derived from economy of scale.
- Departments in which junior enlisted personnel perform supply tasks do not have the senior personnel needed to provide technical direction and training.
- No single individual aboard ship is responsible for ensuring that configuration and allowance systems are properly and promptly updated and maintained.

ALLOWANCES MANAGEMENT

Our major conclusion from the analysis of shipboard allowance management is that the multiple, commodity-oriented allowance lists provide little policy on the management of allowances and impose on the shipboard staff the burden of determining whether or not to stock the allowance quantities of repair parts.

Material requirements for Coast Guard vessels are documented through five manual allowance systems tailored to support commodities¹ of equipment and equipage rather than support the total vessel. These five systems are described in Appendix A. Because these programs are managed by commodities, most large vessels are supported by two of the allowance systems. Such diversification of allowance procedures is inefficient in that separate systems and separate requirements must be satisfied in order to maintain them while many of the tasks are redundant. Furthermore, current allowance systems achieve only limited success at the shipboard level because no positive methods exist for identifying mandatory stockage quantities of repair parts or for ensuring policy compliance and because allowance documentation is infrequently updated.

Although the Comptroller Manual defines recommended and required allowances, allowance items are managed aboard ship as recommended or required at the discretion of the functional department. Vessels have not been provided with the decision criteria needed to differentiate between required and recommended allowances. Furthermore, the management techniques applicable to the two types of allowances are not defined. Deciding on the criticality of an item – whether it should be treated as recommended or required – is not an optimal procedure at the shipboard level since maintenance personnel who make those decisions have very little data on which to base them.

Allowance documentation is infrequently updated aboard ship, and the failure to update it leads to stocking the wrong items and not stocking items needed for maintenance or to keeping items in stock after the equipment for which they were needed has been replaced. The Comptroller Manual, Commandant Instruction M4400.13, Volume III, specifies the conditions for submitting Allowance Change Requests (ACRs). However, in practice, when those conditions occur, the

¹"Commodities" is used in a general sense to identify allowance list breakouts by hull, mechanical, and electrical (HM&E) equipment, and ordnance and electronic equipage.

ACR requirement is ignored or infrequently followed. ACRs are seldom submitted by shipboard supply managers for the following reasons:

- Allowance items and quantities are perceived by ships' crews as inaccurate recommendations that are not worth maintaining.
- The ACR processing time is too long to satisfy constraints imposed by operational requirements.
- Equipment and materiel can be procured or requisitioned regardless of the allowance if sufficient funds are available.
- No single focal point exists aboard a vessel to ensure that allowance documentation is promptly and properly submitted.

The Combined Allowance for Logistics and Maintenance Support (CALMS)² document indicates that procedures for requesting and effecting changes to CALMS are contained in the Comptroller Manual. However, while the Comptroller Manual identifies conditions for submitting ACRs, it does not sufficiently address revisions to correct such deficiencies as unlisted repair parts or missing data for listed parts; and such errors as incorrect nomenclature and technical manual reference or maintenance code omissions. Because the allowance program feedback loop from the vessel to the ICP is poorly defined, managers of the supply function aboard the vessel are not aware of the need or the means for ensuring accuracy of allowance documentation by identifying deficiencies and errors to the ICPs. Thus, the ICPs do not receive the allowance change information they need to update future shipboard allowance documentation and wholesale inventory levels.

Volume III of the Comptroller Manual, while stipulating that allowance programs be established, does not provide adequate guidelines as to how those programs should operate, who they should support, and what they should accomplish. Managers of the shipboard supply function do not have a reference source (i.e., an SOP – standing operating procedure) that provides detailed procedural guidance on allowance program management and related supply tasks, including configuration status accounting, stock control, storage operations, procurement, and financial-related supply management. Without an SOP that precisely describes how to manage the shipboard allowance program, each vessel develops its own methods and they may or may not be compatible with the ICP's

²The CALMS provides allowances of recommended spare parts to support HM&E, ordnance, and fire control equipment on board selected cutters and boats.

method for providing supply support. Furthermore, vessel personnel do not feel compelled to manage the allowance program according to any established policy or procedure. Managers of the supply function aboard the vessel believe that the District staff is their only recourse when difficult allowance program problems arise, and the reorganization to activate MLCs eliminates the District staff as such a resource.

We also note the following four other shipboard allowance management problems dealing with higher level commitment, funding, configuration status accounting, and personnel:

- Higher level commitment to compliance with allowance policy is not apparent. Inspections and assistance visits by HQ and ICP personnel are conducted too infrequently to enforce or assist functional managers in managing the allowance program according to the limited policy and procedures currently established.
- Most items that the Coast Guard uses are stock funded. Thus, the vessel must have sufficient operating expense funds to reimburse the stock fund before it can replenish its allowances. Higher funding priorities often pre-empt allowance replenishment since allowances represent quantities of materiel that are not required now but rather in the future.
- Configuration status accounting aboard ship does not receive sufficient attention to avoid a significant number of inaccuracies in allowance documentation. Allowance programs are totally dependent on configuration status accounting systems to provide accurate physical and functional visibility of equipment/equipage on board the vessel. This visibility provides the basis upon which allowance lists are developed. An item of equipment not reflected on an allowance list is unlikely to receive repair parts support from the supply system.
- F&S warrant officers are neither sufficiently nor properly trained to use allowance item management coding to translate technical management decisions into supply management procedures. The general perception aboard the vessels is that F&S warrant officers do not have the technical maintenance knowledge to manage the allowance program.

CONFIGURATION STATUS ACCOUNTING

The terms "configuration status accounting" and "configuration management" are often used interchangeably in the Coast Guard to describe the system and procedures for recording, reporting, and exchanging information related to equipment and equipage aboard ship. This interchangeable use occurs because

configuration management has different meanings among Coast Guard organization activities. To some it means management of the vessel's design characteristics and the location of utilities and equipments that provide its basic operational capabilities. Others restrict it to mean only the location of equipments and equipage on the vessel. To still others it correctly refers to the collective identification of equipment and equipage on board a vessel that determines its specific operational and mission capabilities and ultimately its supply support requirements. A continuing risk of misunderstanding and communication breakdown exists until a definition establishing the relationship of configuration status accounting to supply management is promulgated and universally understood.

Decentralization of configuration status accounting is a major shortcoming in Coast Guard supply management. In the Coast Guard, configuration status accounting is not centralized at the policy level. Each of three headquarters offices imposes its own unique policy, methods, and systems to the shipboard level, and each system is managed by a different functional user. As many as three systems may support a vessel. The CALMS document provides configuration visibility for most HM&E equipment; the Electronics Inventory System (EIS) is currently being designed to provide configuration visibility of shipboard electronics equipment; and the Weapon Systems File (WSF) provides configuration visibility for Navy ordnance and electronics equipment aboard Coast Guard vessels supported by CALMS.

The current method for ensuring the accuracy of a vessel's configuration is a validation performed with assistance by the ICP. Configuration validations are conducted every 3 to 5 years – usually during a major maintenance availability. No other scheduled inspection or validation process is available to ensure accuracy or policy compliance. The 3 to 5 year time intervals between validation of the vessel's configuration are too long. Configuration errors can go uncorrected for up to 5 years and, in turn, undermine the credibility of allowance documentation and supply support. Failure of shipboard personnel to submit Configuration Change Reports (CCRs) compounds this problem.

Even though the Comptroller Manual specifies the condition for submitting CCRs, the requirement is generally ignored. Because the vessels submit CCRs so infrequently, the ICPs are not aware of what equipment is carried on board a particular ship or of the correct configuration of the equipment. Therefore, they are not able, in all cases, to provide timely supply support to the ship. The ship is then

forced to support the equipment through commercial purchase of repair parts or equipment replacement. This method of support is time consuming for ships' personnel and more expensive than the normal supply system support.

Compounding the CCR problem is the inadequate definition of the configuration feedback loop from the vessel to the ICPs. The Comptroller Manual does not sufficiently address revisions required to correct configuration errors such as an error in manufacturer identification, listed equipment that is not on board, unlisted equipment that is on board, and differences between the identification data in the CALMS or EIS and the nameplate data on the installed equipment.

The Comptroller Manual needs to address more thoroughly the conditions under which configuration documentation must be revised and corrected and CCRs submitted. Because the configuration status accounting feedback loop is poorly defined, managers of the supply function aboard the vessel are not aware of the need or the means for ensuring accuracy of configuration documentation by identifying deficiencies and errors to the ICPs. Inaccurate configuration documentation reduces the reliability of the allowance list, prevents adding allowance quantities of repair parts, and prevents the supply system's stocking of items to support the vessel.

A single configuration status accounting policy or set of procedures is needed at the shipboard level. Managers of the supply function aboard the vessel believe that the District staff is their only recourse when difficult configuration status accounting problems arise, and the reorganization to activate MLCs eliminates that contact at the District staff. Additionally, shipboard personnel do not feel compelled to perform configuration status accounting according to any established policy or procedure.

Managers of the shipboard supply function do not have a reference source (i.e., an SOP) that provides detailed procedural guidance on configuration status accounting or related supply tasks, including allowance program management, stock control, storage operations, procurement, and financial-related supply management. Without an SOP that precisely describes how to manage the configuration status accounting and configuration validation process, each vessel develops its own methods and they may not be compatible with the ICP's method for providing supply support. Further, more frequent inspections and assistance visits by HQ and ICP personnel are needed to enforce or assist shipboard functional managers in

performing configuration status accounting tasks according to the limited policy and procedures that have been established.

The general perception of the F&S warrant officers aboard vessels is that they do not have the technical maintenance knowledge to perform configuration status accounting tasks. F&S warrant officers have been neither sufficiently nor properly trained to use configuration status accounting coding to translate technical maintenance decisions into supply management procedures.

MANPOWER AND TRAINING MANAGEMENT

The Coast Guard has taken a very limited approach toward developing supply management expertise in its officer, warrant officer, and enlisted personnel responsible for the function. The result is that it has few true "supply experts" in its military ranks nor does it have a support structure to develop them. The small number of Coast Guard civilians in the supply management career field is insufficient to fill the supply management requirements that exist at most planning and operational levels. The absence of a commissioned officer group with expertise in supply management relegates the supply function to one of technical operations rather than one that requires leadership and management at the shipboard and higher levels.

The Coast Guard offers no career-enhancement incentive to its personnel to develop an expertise in supply management. Assignment to a supply job is considered to be out of the mainstream for career officers. In the current system, the F&S warrant officers are the supply experts, but many of them are often on the downside time of their careers when they enter the field. Policy and procedure is thus being provided from higher levels by personnel who may not appreciate the demands and unique problems associated with supply support and, given the time span since their last sea duty, particularly those of shipboard supply support. Without current and applicable experience with the enormity and dynamics of a shipboard environment, many headquarters-level policymakers cannot fully comprehend it.

Supply personnel aboard ship perform the full range of supply tasks only for general use items; supply support for the ship's primary readiness equipment and equipage are assigned to other departments. The present system of utilizing F&S warrant officers as shipboard supply managers has had varied results in the past;

however, numerous weaknesses cast doubts about its success in the future. The Coast Guard has no cohesive plan to train them before assigning them to sea duty. Former subsistence specialists (SS rating) who have received a semistructured training program for up to 12 months at a District or HQ unit before being assigned as F&S warrant officers are exceptions. However, currently, only 4 of approximately 25 F&S warrant officers at sea have a prior SS rating. A large percentage has not received any formal training to prepare them for their leadership responsibilities as Chief of the Supply Department nor for their responsibilities as the shipboard supply manager. Once their 3-year tours are completed, they move to an ashore F&S billet and the probability of their returning to a sea assignment is very low. The knowledge gained from shipboard experience moves up and then out of the Coast Guard. True and lasting improvement in Coast Guard shipboard supply management cannot be expected under the current personnel training practices for planning and executing the supply function.

On board ship, the F&S warrant officer performs all supply tasks for the general supplies managed by the Supply Department and provides only local purchasing and requisitioning support for the other departments. The other departments basically serve as their own supply offices.

Coast Guard enlisted members in the SK rating face day-to-day work situations that detract from their current and future ability to provide effective shipboard supply support. The primary factor currently affecting the SK rating is the broad spectrum of duties that the SKs are tasked to do. While they handle some of the mainstream supply tasks, they are also responsible for the personnel items related to payroll, travel, and household goods support. The personnel support tasks tend to receive priority, and the SKs tend to become specialists in certain areas. The scope of the SKs' responsibilities needs to be narrowed to allow them to concentrate on developing skills in providing supply support for the full range of supplies aboard ship. Usually no formal plan exists for continuing SK refresher training to maintain skills in the supply operations tasks or to develop skills in the higher level supply management tasks. Additionally, an SK can have shore duty only or have as little as one sea tour before becoming a warrant officer and being assigned as a ship's Supply Department chief.

AUTOMATED SYSTEMS FOR SHIPBOARD SUPPLY MANAGEMENT

The Coast Guard standard terminal is the primary automated data processing equipment. It consists of networked minicomputers on board several classes of Coast Guard vessels (down to the Bear Class) and at most shoreside activities.

Above the ships, some nonstandard automated systems exist that have a relationship to shipboard supply management. These are mainly at the District levels. The systems are locally developed or contracted for and are operated on various types of personal computers. Among the District logistics applications are project monitoring, budget programs, and some inventory applications. Most nonstandard logistics applications at the Districts are likely to be discontinued as the staff logistics tasks are transferred to the MLCs.

At the shipboard level, the standard terminal supports the EIS; Personal Property Accounting (PPA) system; Automated Requisitioning Management System (ARMS), which provides MILSTRIP interface; and Shipboard Computer Assisted Maintenance Program (SCAMP). While the computers are networked aboard the vessel, no level above shipboard has any visibility of the data in the systems. SCAMP was originally intended to automate the preventive maintenance and parts inventory aboard vessels. The data in SCAMP are loaded from the CALMS documentation manually using the computer printouts from CALMS. A design requirement is underway to create an automated capability for posting the Electronics Repair Parts Allowance List (ERPAL) to the standard terminal. This requirement is for an electronics equipment preventive maintenance and parts inventory system that will be operated independently of SCAMP. The addition of a separate system for electronics compounds the common complaint that too few standard terminals are available on the vessels for the current systems and the personnel who have requirements for access to them.

The development of different systems occurs because each Headquarters office [i.e., Office of Command, Control, and Communications (G-T); Office of Engineering (G-E); and Office of the Comptroller (G-F)] independently prepares commodity-specific functional requirements for automated systems development. No single functional manager is assigned to review and consolidate requirements to form a single automated supply and maintenance information system.

We feel that too many systems for providing the same general functional capability are in use or under development. However, no single system is complete enough for universal use. The shortcomings in any single system for configuration status/property accounting or preventive maintenance/inventory can likely be resolved by adding or expanding data fields and codes. That approach minimizes the work to prepare and document a whole new system for one commodity. It also makes scarce automated system design resources available for higher order automated management requirements – for example, usage history and demand analysis, and performance reporting – for the levels above the ship. Aboard ship, the benefits come from having fewer systems to manage and from the use of a standard system for supply and maintenance support.

Our major conclusions on automated shipboard systems are that there is not a single shipboard system or combination of systems in use that provide a full range of capabilities needed for shipboard supply management. Secondly, without a policy change at headquarters to place the responsibility for automated logistics systems' functional requirements in one office, a single, comprehensive automated system to support supply and maintenance requirements aboard ship is not possible. We also conclude that an automated file access capability is needed to permit levels above the shipboard level to communicate with the shipboard automated supply support systems for management review and oversight by electronic means, and to pass allowance and configuration change information.

CHAPTER 3

RECOMMENDATIONS

From our analysis of the issues, the systems supporting the shipboard operations, and the policies and responsibilities associated with shipboard supply management, we have developed the following major and secondary recommendations. The major recommendations are those directly related to the ship; the secondary ones are those that relate to supply management at levels above the ship.

SUPPLY MANAGEMENT ORGANIZATION

Major Recommendations

- Considering its current operations and personnel constraints, the Coast Guard should establish a centralized shipboard supply management operation on icebreakers, high endurance, and medium endurance cutters. We believe that such centralization will result in a more economical and effective utilization of personnel and materiel resources than the existing decentralized method of supply management. We further believe that the larger vessels will realize the greatest benefits from this centralized organization; thus, we recommend it be first implemented on Polar and Hamilton classes.
- In order to execute a centralized supply policy, the Coast Guard should promulgate a generally accepted functional definition of shipboard supply management and define the organization necessary to implement it. We recommend a single department aboard ship be responsible for centralized supply management and for the following functions for all repair parts, spares, and general supplies:
 - ▶ Determining stock levels of all supplies and repair parts including demand supported, nonallowance items
 - ▶ Requisitioning and requisition management of all materiel requirements
 - ▶ Local purchasing of supplies and services
 - ▶ Receiving, storing, and issuing supplies

- ▶ Accounting, inventorying, and physical control of supplies and repair parts
- ▶ Maintaining all allowance documentation
- ▶ Accounting for the status of the vessel's equipment/equipage configuration and personal property
- ▶ Cost accounting, cost analysis, and budget execution
- ▶ Shipboard level centralized funding of repair parts and general supplies
- ▶ Interfacing with supply support levels above the vessel
- ▶ Serving as point of contact for supply assistance, inquiries, and inspections external to the vessel
- Considering the scope and complexity of the centralized shipboard supply operation, the Coast Guard should appoint an officer, preferably from a supply/materiel/comptroller background, as the ship's supply officer and Chief, Supply Department. On small cutters or when a supply officer is not available, an F&S warrant officer or the most senior-rated SK should serve as Chief, Supply Department. The rank and personnel structure should be commensurate with the size of the vessel. When a supply officer or warrant officer is not available, the supply management responsibilities should reside with the Executive Officer. All SK rated personnel should report to the Chief, Supply Department.

Benefits

Centralized supp'y control will result in the following benefits:

- Supply and parts availability for the maintenance program will be better because the supply function will be the major responsibility of the department.
- Supply accountability will be more accurate since access to supplies will be restricted and all receipts and issues will be made from a single point.
- Better usage history will be recorded aboard the ship, and better demand data and supply forecasts will be sent to supporting levels above the ship.
- A single department with central visibility of all materiel will ensure that mandatory allowances are stocked and duplications of items and unnecessary back orders are eliminated.
- Supply analysis and planning spares and repair parts requirements for availability periods will be performed from a single department that can

focus its efforts on the total supply and budget resources and will have visibility of them.

- Configuration status accounting responsibility will be centralized.
- A single department will provide budgeting and cost accounting for funds used to support supply requirements.
- Expenses will be distributed to using departments at the time the materiel is issued to better reflect and support a performance-oriented budgeting system.
- A single, full-time individual will be responsible for all supply administration functions, thus freeing maintenance personnel of this duty.
- Supply personnel will be used more efficiently and duplicate efforts among the maintenance sections will be eliminated.
- The vessel's supply experience and expertise will be consolidated and available to provide increased training of supply personnel.

ALLOWANCES MANAGEMENT

Major Recommendations

- As a fundamental shipboard stockage policy, the Coast Guard should identify all items on the allowance lists as mandatory stockage items and should establish the management standard as 100 percent of the items and quantities on hand or on order.
- To integrate the management of allowances with other shipboard stockage items, the Supply Department aboard ship should accumulate usage history data for the purpose of adding items to stockage or increasing allowance quantities through the Allowance Change Request procedure.
- To maintain viability and promote responsiveness in the allowance change system, the ship's Supply Department should be assigned central responsibility for processing current allowance quantity change requests, identifying new items for allowance lists, and processing approved changes to allowance documents.

Benefits

Implementation of the above recommendations should provide the following benefits:

- Designating mandatory stockage items eliminates the confusion of the current system and gives both supply and maintenance personnel a common

base for their primary operational effort. Mandatory allowances also improve support to the maintenance program by having the needed repair parts on board.

- Combining mandatory allowances with a usage history data base develops a more accurate stockage quantity and range of items for supporting the operational requirement. The information accumulated aboard ship serves as an input to the ICPs to improve their stockage levels.
- Placing allowances management under the Supply Department promotes development of a central point of expertise for managing the day-to-day supply accountability and allowances change procedures.

Secondary Recommendations

A program for stocking mandatory allowances requires certain changes in the support system at levels above the ship. The first action is to select the equipment/equipage that is to be supported by onboard repair parts allowances. The second is to identify the repair parts needed to support the selected equipment/equipage and develop appropriate allowance documentation. These two actions must be implemented prior to distributing new equipment to the ship. Success is influenced by exercising discipline over this portion of the process. To accomplish this, we recommend that:

- HQ Program Managers and Maintenance Engineering Managers develop the decision criteria for selecting equipment/equipage that is to be supported by the allowance systems and any special supply management, reporting, and reviewing requirements. Conversely, the HQ Program Managers should promulgate a listing of the equipment/equipage that is not to receive repair parts support from the ICPs.
- Maintenance Engineering Managers and ICP Provisioning Managers identify the spares and repair parts and the quantities for the allowance list.
- ICP Item Managers assign necessary codes and broadcast the mandatory stockage items as the mandatory allowance list.
- ICPs, in coordination with the Electronics Engineering Center, Wildwood, develop the capability to prepare the mandatory allowance list in an automated system processable form to the ships operating the SCAMP system.

- The Comptroller, in conjunction with the Program Managers, develops a control system tied to release of funds that ensures new equipment/equipage acquisitions are fully coordinated with the ICPs for repair parts and spares stockage prior to the equipment/equipage being put aboard ship.
- The MLCs provide central operating expense funding for the replenishment of mandatory allowance items on a requisition line item basis.

CONFIGURATION STATUS ACCOUNTING

Major Recommendations

- The Coast Guard should centralize responsibility for configuration status accounting and assign that responsibility to the shipboard supply officer. The current approach to configuration status accounting results in a fragmentation of responsibility along commodity lines.
- The Coast Guard should perform an annual 100 percent reconciliation of the equipment/equipage/property aboard the ship to the configuration status accounting documentation. The accuracy of the ship's configuration parts determines shipboard allowances and stockage levels. This reconciliation should include a comparison of data plate information and current documentation.

The reconciliation of a ship's configuration is a recurring process. Although the control of reconciliation documentation and maintenance of the accounting and reporting records are centralized under the supply officer, the accuracy of the information is the responsibility of the functional user of the equipment/equipage/property. The functional user is most familiar with the location and specific identification of the items. An annual 100 percent reconciliation of the ship's configuration should be directed by the supply officer and performed by the functional users, i.e., the engineering, ordnance, electronic, and deck officers. The reconciliation should be an ongoing process with some percent of the ship's spaces being inventoried each month. The changes noted in the reconciliation are the basis on which the supply officer prepares and submits changes to update configuration status records at levels above the ship.

Benefits

Centralizing configuration status accounting responsibility and annual validations will provide the following benefits:

- The accuracy of the shipboard item accounting record will be improved and annual updates to the parts allowances process can be generated. The

repair parts allowance quantities will be more exact, and parts availability for maintenance will be better.

- Each vessel will have a process for integrating locally purchased equipment/equipage into the accounting system and reporting them to higher management levels.
- Management and visibility of onboard equipment/equipage/property will be focused at a single point.
- A single department will be responsible for control and reporting of shipboard CCRs and for maintaining temporary postings to configuration records.
- Maintenance personnel will be relieved of the administrative requirements associated with configuration changes.

Secondary Recommendations

For the configuration status accounting process to become an effective and permanent adjunct to managing the total supply function, a continuous interrelationship must exist between the supporting level and the shipboard operation. To achieve that relationship, we recommend that:

- The MLCs conduct annual configuration status compliance inspections and perform sample equipment validations audits.

Inspections and audits by a higher HQ are a time-proven method for gaining firsthand knowledge of problems and resource shortfalls at subordinate activities. Compliance with configuration status accounting policy and sampling the accuracy of configuration records provides the feedback for policy, plans, and budget changes. This area is the concern of the Regional Inspectors Office with technical expertise provided by the F&S warrant officer and the SK rating assigned to the Office.

- The Comptroller, in coordination with the Electronic Engineering Center (EECEN), should develop a single equipment/equipage/property data base system containing the configuration of each cutter in an Area. That data base should be provided to the MLCs for use in maintenance and operations planning.

A single data base will provide a flexible means to manage end items. It can serve the various functional offices at both the Area and MLC and can be consolidated at the ICP. The data base file can also be used by such other supply management systems as the Weapons Systems File. A comprehensive configuration data base is an invaluable management tool. A data base containing equipment/equipage/property aboard each

ship – with information such as the basic allowance and onboard quantities, manufacturers, model numbers, serial numbers, replacement factors, and date in service – can support a large, multifunction planning, resource allocation, and budget decision system.

Benefits

Establishing and maintaining central configuration status accounting records at the MLCs for the cutters in each Area benefits a number of other related support elements. These records will provide valuable management information in the following areas:

- Maintenance Planning
 - ▶ Area-wide information can be accumulated and used as input for equipment/equipage density lists and other technical requirements such as preventive maintenance schedules and training.
 - ▶ Budget and maintenance availability plans can be developed for ship alterations, scheduled maintenance programs, and equipment/equipage modernization schedules.
- Equipment/Equipage Planning
 - ▶ Standardization of specific systems and equipment on board the cutters can be a realistic and achievable goal.
 - ▶ Equipment/equipage/property can be redistributed within the Area to cross-level assets and reutilize excess items.
- Operations and Capability Planning
 - ▶ The impact of a casualty report on a vessel's capability can be assessed considering the total ship's configuration.
 - ▶ Multiyear budget estimates can be prepared for major equipment and equipage replacement based on life expectancy and date-in-service information.

MANPOWER AND TRAINING

Major Recommendations

- Although the actual assignment of supply officers depends on personnel availability, the Coast Guard should establish a position structure that designates the supply officer on high endurance cutters/icebreakers to be a commissioned officer (grade 02/03) in addition to an assistant supply officer (grade W3/W4); on medium endurance cutters the supply officer to be an

F&S warrant officer (grade W3/W4); and on smaller cutters, absent a positional supply officer, serving as supply officer should be a major collateral duty of the executive officer.

- The Coast Guard should develop a specific supply management training course at the Training Center, Petaluma. An alternative is to negotiate with the Navy to tailor the Supply Indoctrination for Line Officers (SILO) course to a content and length suitable for the training of supply officers on high and medium endurance cutters in the management of a centralized supply operation.
- An F&S warrant officer intern program should be established on high endurance cutters/icebreakers. The assistant supply officer billet should serve as the training location for an F&S warrant intern when the need exists for such training prior to assuming duty as the supply officer aboard a medium endurance cutter.

Benefits

Implementation of the supply officer position designation and training recommendations will provide the following benefits:

- Responsibility for the total shipboard supply operation will be focused in a single individual.
- The benefits of centralized supply operations, configuration status accounting, and allowances management can be more readily realized under a supply officer's direction.
- It will define a starting point for a supply officer's career path that fulfills many goals: an early afloat tour; direct application of college-level business administration and management science skills; and firsthand experience for recall in future higher level supply management positions.
- It will provide the supply officers with the experience needed to plan the supply transition requirements for defense operations under Navy control and for managing the ship's supply support in the mobilization environment.
- It will be an optimal use of manpower since the exchange of knowledge and the controlled obtaining of experience in an internship program are respected and time-proven methods of conserving scarce resources and getting the most return for time spent in learning.
- The internship process will establish a mentor-student bond that traditionally promotes a sense of professionalism and pride in those who experience it.

Secondary Recommendations

- To relieve the shipboard SKs of administrative functions that do not contribute directly to the centralized supply control operation, personnel support tasks such as those related to travel, pay, and transportation of household goods should be reassigned to the extent possible to the shoreside unit at the cutter's home port, and the responsibility for the point of contact aboard ship should be assigned to the administrative or personnel support manager.

The personnel support tasks are overhead to the operational missions of the Coast Guard, and while necessary, are better accommodated by a shoreside activity. With today's advances in communication, such as electronic funds transfer, overnight mail, and data links, personnel support tasks lend themselves to management by a shore unit that can respond to requests from virtually anywhere, even ships that are under way.

- The Coast Guard should establish a clearly defined career pattern and special training suffix code for the commissioned officers who receive supply management training and assignments. Supply management assignments should be alternated with primary specialty or operations assignments in an established billet structure that extends from aboard ship to the HQ staff.

The best designed supply support organizational structure and the most thoughtfully conceived policies do not produce an efficient and effective operation without the trained personnel to plan and manage the supply function. A core of commissioned officers with the special adjunctive skill in managing the supply function will fill an existing continuity gap in the Coast Guard's capability and provide the Coast Guard with a professional group that injects the special supply management considerations and expertise during every assignment and at each level of responsibility throughout their careers.

AUTOMATED SYSTEMS FOR SHIPBOARD SUPPLY MANAGEMENT

Insofar as automated shipboard supply management systems are concerned, we make two recommendations:

- The Coast Guard should develop a single system for shipboard supply management and establish a single headquarters proponent for automated logistics systems functional requirements, development, and performance.
- The Coast Guard should establish a mechanism that allows levels above the shipboard to communicate with shipboard automated supply support systems for electronic review and oversight.

APPENDIX A

THE CURRENT COAST GUARD SHIPBOARD SUPPLY SUPPORT SYSTEM

CURRENT SUPPLY ORGANIZATION

In our research, which involved review of Coast Guard supply-related directives and interviews with Coast Guard personnel from Headquarters (HQ) to the shipboard level, we found that the responsibility for shipboard supply tasks was allocated differently on different ships. Although some ships have more supply tasks assigned to the Supply Department than do others, in no instance is the Supply Department responsible for the full range of functions for all supplies needed aboard the ship.

Under the current shipboard supply philosophy, centrally managed tasks are generally limited to ordering and budgeting for general supplies, managing the Military Standard Requisition and Issue Procedure (MILSTRIP), authorizing local procurements, and managing the personal property account. Maintenance-related supply tasks, including allowance management, configuration status accounting, and maintenance materiel management, disposition, and cost accounting, are a portion of the total maintenance responsibility of the respective departments on board the vessel. Specifically, on the larger cutters, the Engineering Officer is responsible for the maintenance-related supply support of hull, mechanical, and electrical (HM&E) equipment. The Electronics Maintenance Officer (EMO) is responsible for the maintenance-related supply support of electronics equipment as are the Weapons Officer and Operations Officer for ordnance equipment and operations equipage, respectively. Other than the MILSTRIP requisition process and the local purchase process, in which functional interaction between departments is minimal, the shipboard supply is not further integrated with the shipboard maintenance function. The following is a general profile of current shipboard supply management:

- Centralized under Supply Department management are:
 - ▶ Requisition and receipt processing

- ▶ Local purchase processing
- ▶ General-purpose supplies budgeting and accounting
- ▶ General-purpose supplies stock control
- ▶ Personal property accounting
- Decentralized under functional department management are:
 - ▶ Allowance documentation maintenance
 - ▶ Spare and repair parts stock control
 - ▶ Spare and repair parts budgeting and accounting
 - ▶ Configuration status accounting and validation.

While the current shipboard philosophy varies on a case-by-case basis, we found only one significant exception, the Polar Class Icebreaker in which the fiscal and supply (F&S) warrant officer is responsible for both general supply and HM&E equipment maintenance-related supply. The electronic maintenance-related supply function, however, remains the responsibility of the EMO.

The shipboard assignment of supply responsibilities reflects the Coast Guard support structure of vertical management from HQ to the end user. This management organization is driven by the current HQ organizational structure, which is designed to focus independent support to each "commodity," of equipment and equipage [i.e., electronic, Office of Command, Control, and Communication (G-T); HM&E, Office of Engineering (G-E); ordnance, G-E; general purpose, Office of the Comptroller (G-F)] in all maintenance and supply aspects of policy development and program support. As a result, the Coast Guard supply support structure actually consists of four vertically managed, commodity-related supply support systems. Supply tasks are viewed as an inherent responsibility of individual commodity managers in HQ and their functional counterpart on board the vessel. In August 1986, the Coast Guard Chief of Staff assigned responsibility for logistics policy, oversight, and review to the Comptroller. Although the Comptroller is thus authorized to centralize maintenance-related supply tasks under the Supply and Property Division (G-FLP), no additional technical resources have been provided for this significant and complex undertaking. The Chief of Staff identified other HQ staff offices as integral partners in the logistics process for their respective areas of responsibility. Accordingly, the Comptroller Manual assigns G-E and G-T

responsibility for providing technical advice and engineering support, particularly in connection with provisioning requirements, to assist G-F in management of the supply function. However, neither G-E nor G-T provide technical support because the Comptroller Manual does not specifically indicate their technical areas of responsibility. Maintenance-related supply support, therefore, continues to flow directly from the HQ level commodity manager to the functional shipboard counterparts.

The Chief of Staff also directed the Comptroller to undertake a study of the changes in logistics policy, organization, procedures, and resources that, upon implementation, produce the necessary management control and system oversight at the HQ level and ensure continuity of policy and responsibility from HQ to the operating units. This report is the first documenting that study. It presents the analysis and recommendations on shipboard supply management. Future reports will document higher level policy and responsibility changes, including requirements for coordination among G-F, G-T, G-E, and the remaining integral partners.

ANALYSIS OF THE CURRENT SUPPLY ORGANIZATION

The vertical, i.e., commodity-oriented, management structure existing above the ship causes functional department managers to assume responsibility for both the maintenance and supply functions for their respective commodities of equipment. Maintenance responsibility requires technical knowledge of equipment, while the supply responsibility requires management knowledge of the supply support system. Because of the basic difference in the two responsibilities, a shipboard department manager, who is very capable in performing the maintenance responsibility, may not be as capable in accomplishing the supply responsibility. Furthermore, most often, that manager prefers to work on maintenance tasks more than on supply tasks since his training is in maintenance. Consequently, if the two responsibilities compete for his time, the maintenance task is performed at the expense of the supply task.

It is our observation that the current approach to managing the supply function results in several shortcomings in spares and repair parts management aboard the vessel. The shortcomings are described in the following paragraphs.

Because each functional department controls its own stocks and maintains a separate storeroom, a ship's total onboard stockage of spares and repair parts is difficult to determine. As a result inventory visibility is limited and the same parts and supplies are stocked in more than one department on board the vessel. It contributes to the loss of usage history, especially usage history of locally purchased items. Inventory loss and pilferage may also be greater since more people have access to storerooms.

Under the current organization, shipboard supply task management is inefficient since the same tasks are performed by each of the ship's functional departments. This is not an economical use of time nor does it produce the most benefit from the effort put into it. Furthermore, since most tasks involve a learning curve, efficiency improves once well along on that curve as a result of the repetitive nature of the task. Under the commodity management approach, many tasks are performed too infrequently to ever eliminate the learning curve or they involve insufficient repetition to permit efficiency. Additionally, any supply management expertise that exists is spread so thin that its effectiveness is severely diluted.

There is no focal point on board the vessel to ensure that configuration and allowance documentation are properly and promptly updated. Without that single individual who is exclusively concerned with supply matters, configuration status accounting and allowance change request documentation receive little attention because they do not affect the operation of the vessel as immediately as a malfunctioning pump or an inoperative generator. Unless the allowance documentation is updated, equipment/equipage changes are invisible to the support system above the ship. Consequently, new repair parts and spares are not added to the allowance list, and those for the replaced items are not deleted. Ultimately, more local purchases are needed to fill requirements for new repair parts and spares, and often those purchases are made under emergency conditions. Conversely, the unneeded allowance items remain aboard and occupy scarce storage space. Finally, under the current system, supply tasks such as usage data collection, spot inventories, stock record maintenance, training, financial accounting, and supply management auditing and analysis are viewed as having little impact and are often ignored.

ALLOWANCE PROGRAMS

The Comptroller Manual, Commandant Instruction M4400.13, Volume III, establishes the policy that Coast Guard materiel requirements are documented through a series of applicable allowance programs for all cutters and small boats. These allowance programs identify maintenance-related supply requirements for each commodity tailored to the specific equipment and equipage on each vessel. Because allowance programs are established independently by each HQ commodity manager, five allowance systems exist and most large vessels are supported by two of the systems. A description of the five systems is provided in the following subsections. The shipboard allowance systems are summarized in Table A-1.

Current Allowance Systems

Combined Allowance for Logistics and Maintenance Support (CALMS)

The CALMS document provides allowances of recommended spare parts to support HM&E, ordnance, and fire control equipment on board selected cutters and boats operating under the CALMS system. Allowance program administration and maintenance is the responsibility of the Ships Inventory Control Point (SICP). The CALMS document is updated through input provided by the Ships Parts Control Center (SPCC) for Navy-owned equipment and the SICP for Coast Guard-owned equipment. It is maintained on the Weapon Systems File (WSF) that, under the control of SPCC, provides the mechanism for CALMS requirements computation and documentation output. Configuration status accounting for HM&E and ordnance is facilitated by the CALMS program.

Electronics Repair Parts Allowance List (ERPAL)

The ERPAL provides allowances of repair parts to be carried aboard a particular vessel to support electronic equipment. Allowance program administration is the responsibility of the Electronics/General Inventory Control Point (E/GICP). The Allowance Parts Lists (APLs) document is generated from the WSF by SPCC for all Navy-owned equipment, while the E/GICP maintains a separate data base that generates APLs for supported Coast Guard electronic equipment. Prior to ERPAL distribution, the E/GICP combines Navy-owned equipment and Coast Guard-owned equipment APLs into the ERPAL document. The WSF also serves as a configuration status accounting system for Navy-owned

TABLE A-1
CURRENT SHIPBOARD ALLOWANCE SYSTEMS

System	Basic commodity	HQ proponent	ICP proponent	Shipboard management proponent	Standard terminal access	Shipboard input	Parts allowance system	Configuration status accounting system
CALMS	HM&E	G-E	SICP	Engineering officer	No	Manual	Yes	Yes
ERPAL	Electronics	G-T	E/GICP	EMO	No	Manual	Yes	No
Cutter System file	HM&E	G-E	SICP	Engineering officer	No	Manual	Yes	Yes
BOSS	HM&E	G-E	SICP	Engineering officer	No	Manual	Yes	Yes
SAAL	HM&E / Electronics	None - District Support Center	SICP-E/GICP (receives SAAL information)	None	No	Manual	Yes	No

Note: ICP = Inventory Control Point, SICP = Ship's Inventory Control Point, EMO = Electronics Maintenance Officer, G-T = Office of Engineering, G-E = Office of Command, Control and Communications.

equipment and equipage. Configuration information for Coast Guard-owned electronic equipment and equipage is input from the Electronic Inventory System (EIS), which was established by G-T to serve as a property accountability system.

Cutter System File

The Cutter System File is similar to the CALMS in format and content. The lists are generated by a data base maintained by the SICP instead of SPCC. The Cutter System File applies to selected cutters less than 180 feet long that do not have Navy-owned equipment. Configuration status accounting for HM&E equipment is provided by this system.

Boat Outfit and System Support (BOSS)

BOSS provides a listing of authorized repair parts, outfit items, and specialized tools for the support and performance of Station, Group, and District maintenance of the 30-foot Surf Rescue Boat and other standard boats within the Coast Guard. Allowance program administration and maintenance is the responsibility of the SICP. BOSS lists are generated by the data base in three sections. Section A lists repair parts for the entire boat in the APL-style format and provides recommended station and group allowances. Section B is a list of outfit items required by the Office of Search and Rescue (G-OSR) to be on board the boat while under way or when transferred. Section C identifies all special tools used to perform preventive and corrective maintenance. The BOSS program provides for configuration status accounting through control of the standard boat's equipments and equipage.

Support Activity Allowance List (SAAL)

The SAAL provides authorized allowances of the materiel required by a support center for scheduled maintenance actions and overhauls of small boats. Allowance program administration is the responsibility of the support center. The SAAL is produced by the support center, approved by the District Commander, and forwarded to the Inventory Control Points (ICPs) for their information. It is not related to configuration status accounting.

Allowance Management

According to the Comptroller Manual, Volume III, allowances may be "required" or "recommended" quantities. The Comptroller Manual defines each type of allowance as:

- Recommended Allowances: A quantity of materiel that has been recommended as adequate to support a unit and its personnel
- Required Allowances: A quantity of material essential to mission effectiveness or mandatory for the safety of a unit and its personnel.

The Manual also requires that allowances of "required" and "recommended" materiel be established by program and support manager policy based on a number of factors such as operational requirements, mission, and maintenance philosophies.

The delineation between "required" and "recommended" allowances is provided to the ship in very general terms, i.e., as a statement in the introductory portion of the allowance document.

- The CALMS and Cutter System File documents state that they list the equipment or components required for the ship to perform its operational mission, and the repair parts required for the overhaul and repair of the equipment.
- The ERPAL states that it is a listing of all items recommended for on board maintenance repair of all electronic equipment supported by an APL.

As additional information for managing allowances, the CALMS and Cutter System File provide an Equipment/Component Military Essentiality Code (MEC) and a Part MEC that relate the importance of the equipment/component to the ship's mission and the part to the operation of the equipment/component. The ERPAL does not provide essentiality coding.

Allowance Computation and Support

The Coast Guard has two basic levels of supply support: wholesale and organizational. An intermediate or retail level of supply exists only to support staging of planned maintenance requirements for Polar Class Icebreakers. However, the Comptroller Manual permits retail supply fund stockage when requested by District Commanders and authorized by G-F. Through Inter-Service Support Agreement, Navy Supply Centers provide additional intermediate stockage

points for the Coast Guard. Currently, however, Navy Supply Centers are being used as supply points for Navy-owned equipment support and Coast Guard-owned, Navy-type equipment support.

Wholesale Support Level

The ICPs perform the wholesale supply function for Coast Guard-unique items and provide direct support to ships and shore activities. Wholesale stockage requirements are determined by the ICPs based initially upon provisioning estimates, and subsequently upon demand data. When provisioning estimates are not available, stockage quantities are calculated as a function of item population. Demand data are subsequently factored into a requirements computation formula to determine demand-based stockage. Nondemand-based requirements are stocked as insurance items with a quantity of one.

Shipboard Allowances

Program and support managers are designated in the Comptroller Manual as having responsibility for establishing shipboard allowance requirements.

Allowance quantities for repair parts for which SPCC has an APL are determined utilizing the Navy's Coordinated Ships Allowance List (COSAL) model. The COSAL model employs the Fleet Logistic Support Improvement Program (FLSIP) computation formula for Navy-owned equipment and a conventional formula, based entirely upon new end-item population, for Coast Guard-unique items that are reported to SPCC for the WSF. Repair parts allowance quantities for Coast Guard-unique items supported by the ERPAL and the Cutter System File are primarily those provided by manufacturers or from technical engineering estimates. In the absence of such information, the repair part allowance quantity is generally set as one.

Allowance Updates

Permanent allowance change requirements in the Coast Guard typically reflect configuration changes resulting from field modifications, local purchases of equipment and equipage, or modifications directed by the Maintenance and Logistics Commands (MLCs) or HQ, who may procure the new equipment and equipage or contract for equipment and equipage modifications. Changes to allowances

resulting from fluctuations in support requirements may be authorized at local command (District or Group) level for short periods of time.

Changes in range and depth of support materiel for HM&E are requested through the appropriate Allowance Change Request (ACR) procedures. The Comptroller Manual specifies conditions for submitting ACRs and directs that they be submitted prior to effecting equipment and equipage configuration changes. The ACR is also submitted to change a repair part allowance quantity when usage rates aboard ship indicate the current quantity is inadequate or in excess of actual need. There is no requirement for a periodic submission of usage history to be included in a recomputation and update of repair parts allowance quantities. The SICP is required to approve or disapprove requests that do not involve technical considerations. All other requests are forwarded by the SICP to the Lead Program Manager for final approval or disapproval.

For electronics equipment supported by the ERPAL, allowance quantities are changed and items added or deleted based on the unit's needs and experience under varying operating conditions. When allowance quantities are changed or items modified, the unit notifies the E/GICP by submitting an allowance change form. The E/GICP reviews the change and, if considered applicable to other units, prepares and distributes an ERPAL amendment.

Allowance Materiel Funding

At the wholesale level, two basic funding structures support the funding of allowances; the first involves the initial outfitting and uses the funds appropriated for that particular program; and the second is for replenishment requirements funding, which uses Appropriation Purchase Account (APA) or Supply Fund (SF) dollars.

Initial Outfitting

Acquisition, Construction, and Investment (AC&I) dollars budgeted for by the program manager currently fund all headquarters-sponsored acquisitions including initial stocks of APA materiel as well as initial quantities of support system and onboard repair parts.

Replenishment Requirements

The wholesale level replenishes its initial quantities of APA materiel with annual operating expense funds provided by the HQ manager who is responsible for the specific program that requires the APA materiel. Wholesale level inventories of APA materiel are issued to replace or increase allowance quantities aboard ship. The items are provided to the ship on a nonreimbursable basis although the cost is posted to accounting records against the using unit's identification code.

Supply funded materiel is replenished from the ICP's revolving fund. Wholesale inventories of SF repair parts and spares are issued to replace shipboard allowance quantities on a reimbursable basis.

At the shipboard level, initial allowance quantities of AC&I funded materiel are received free of reimbursement. Initial and replacement allowance quantities of APA materiel are also nonreimbursable. Replacement allowance quantities of SF materiel are purchased with the ship's operating fund known as Operating Guide 30 (OG 30). OG 30 funds are distributed to the vessel on a quarterly basis and are budgeted based on the previous year's budget plus any incremental changes. The OG 30 funds are controlled by the Areas/Districts and can be used to fund all types of requirements.

ANALYSIS OF ALLOWANCE PROGRAMS

Volume III of the Comptroller Manual, while stipulating that allowance programs be established, does not provide clear guidelines as to how they should operate, who they should support, and, particularly, what they should accomplish. In absence of specific policy to control their development, several independent shipboard allowance program management methods have been established. This diversification of allowance procedures is of itself inefficient in that separate systems and separate requirements must be satisfied in order to maintain them while many of the tasks are redundant.

Allowance Management

The allowance program policy does not specify whether allowance items should be managed as "required" or "recommended." It defines the two terms and tasks the program and support managers to establish their own policy to apply to allowances of "required" and "recommended" materiel. The visible result is that the large

vessel's main allowance documents, the CALMS and the ERPAL, present opposite statements of the contents of the document. The CALMS identifies the equipment/components and repair parts listed as "required," while the ERPAL is silent regarding equipment/components but states that the repair parts listed are the "recommended" quantities for the electronics equipment supported by an APL. The burden of deciding allowances of repair parts to stock aboard the ship then falls on the maintenance manager. The MEC entry in the CALMS assists the Engineering Officer to some degree in making the decision. However, the ERPAL does not have that MEC information. Making a decision as to the criticality of an item at the shipboard level is difficult since maintenance personnel have to make that decision based on very little data, and without the benefit of the technical knowledge of current trends and performances of the total Coast Guard universe of missions and equipment. Additionally, we found that in practice, many maintenance managers perceived repair parts allowances as inaccurate and therefore treated all as "recommended."

A second important aspect of allowance management is that an allowance system must be continually monitored if it is to achieve a satisfactory level of support, i.e., to have the right repair parts on hand a prescribed percent of the time. The effectiveness of an allowance program is difficult to measure without set standards and a continual monitoring of the system and its management procedures. Our observation is that the Coast Guard has not established any standards and provides little top-down monitoring for even qualitative analysis of the allowance management process.

Our research also discloses a shortfall in higher level commitment to enforcing even limited allowance policy compliance. Of the vessels we visited, none indicated their allowance documents or Supply Departments were inspected in the past 2 years. In the management of allowances, compliance inspections have a positive impact. They help identify systemic allowance problems to the wholesale level, standardize operating procedures, and provide technical supply assistance and monitoring to the vessel.

Allowance Computation and Support

At the wholesale level the main problem stems from failure by the HQ equipment acquisition manager to develop an Acquisition and Support Plan (ASP) in

sufficient detail or early enough in the cycle for the ICPs to prepare an allowance computation and to plan for replenishment stock requirements. Our observation is that the equipment acquisition managers are not familiar with an ASP and are generally inexperienced in the supply and maintenance-related supply functions. Although likely well aware of the requirements of the program manager, they have little feel for the details required to bring initial and replenishment stocks into the supply support system. Consequently, the ICPs are brought into the coordination process too late in the cycle. In many instances described to us, ships have received equipment identified for support by an APL before the ICPs have an ASP on which to base allowance computations. When that occurs, the planning and procurement leadtimes make the ICPs nonresponsive to the ship's supply requisitions for periods of a year or more. Knowing this, the ships forgo requisitioning, and the demand history that would have been accumulated is lost from the ICP's stock level computation base. The result is that replenishment levels continue to be understated.

At the shipboard level, the absence of an allowance quantity of repair parts for new equipment forces the use of local purchases – frequently as emergencies because of time constraints – to get needed items. The secondary effect of the delay in the allowance computation and support process is that the shipboard staff is forced to do the technical research for supply sources – a time-consuming and frequently frustrating effort viewed by the staff as work that should be done by the HQ or ICP staff. The delay in integrating usage history into the allowance computation results in the shipboard allowance quantity continuing to reflect the original technical estimates (if any were made), and those seldom prove accurate over the equipment's useful life. To the shipboard staff, the allowance computation is suspect; it starts with questionable estimates and shows little improvement over time.

Allowance Updates

We found that allowance documentation is not being updated for several reasons:

- The responsibility for preparing the change is vested in one of the maintenance departments, and those departments are involved in doing the actual maintenance and have little time for administration.

- Allowances are perceived by the ships' crews as recommended quantities. The crew has no incentive for submitting allowance change requests.
- No central point is provided to ensure their submission.
- Processing time for allowance change requests does not satisfy time constraints imposed by operational requirements.
- Equipment and materiel can be procured regardless of the allowance or the allowance quantity, provided sufficient funds are available.

Allowance Materiel Funding

Aboard ship the current method of funding allowance materiel and other repair parts requirements is through the use of OG 30 funds. As previously discussed, those funds are general operating expense funds and are expended at the discretion of the Commanding Officer. Our research revealed that the budget procedure in general use aboard ship relates dollar requirements to replacement of repair parts and spares. The strictness of the estimated requirement reflects the Commanding Officer's priority for shipboard maintenance capability. The higher the Commanding Officer's concern for maintenance readiness, the better the estimate and the closer the fund distribution to the estimate. Conversely, where maintenance and supply support needs are secondary to operational programs, fund distributions are usually inadequate and allowance quantities are not replaced on a timely basis.

A second observation is that although the accounting system identifies costs by codes that identify funds used for repair parts and spares, no shipboard or higher level review process examines the costs against budget estimates. We believe such a review instills discipline and improves budget accuracy.

CONFIGURATION STATUS AND PROPERTY ACCOUNTING SYSTEMS

Integral to determining allowance requirements, configuration status accounting (the documenting of physical and functional characteristics of equipment and equipage) is applied to electronic equipment and software, HM&E, and ordnance and fire control equipment. Configuration status accounting is the element of configuration management that specifically identifies equipment and equipage for the supply system to provide support. In the Coast Guard, it is used interchangeably with configuration management to describe the system and procedures for recording, reporting, and exchanging information related to equipment and equipage aboard ship. This interchangeable use occurs because the definition of configuration

management differs among organizational activities of the Coast Guard. To some it means the vessel's design characteristics, and location of utilities and equipments that provide its basic operational capabilities. Some maintain that it is restricted to mean only the location of equipment and equipage on the vessel. To others it refers to the collective identification of equipment and equipage on board a vessel that determines its specific operational and mission capabilities, and ultimately its supply support requirements. Because the term "configuration management" can lead to confusion, we use "configuration status accounting" in this report.

In contrast to configuration status accounting, property accountability is established for general-purpose equipment. This materiel is accounted for; that is, the equipment is documented for physical accountability to satisfy statutory requirements.

Table A-2 depicts the current configuration status and property accounting systems.

Current Systems

Since configuration status accounting systems and property accountability systems are established independently by each HQ commodity manager, as many as three separate equipment/equipage accounting and property accountability systems may support a single vessel.

HM&E Configuration Status Accounting Systems

HM&E configuration status accounting, as well as allowance documentation, is facilitated using the CALMS, BOSS, or Cutter System allowance documents. The allowance documents provide a listing of equipment and equipage to be supported by an APL. This list provides the means for configuration status accounting but does not facilitate property accountability. For that purpose, the Cutter Register was established whereby only the vessel is accounted for, not each individual item of equipment.

Electronic Inventory System (EIS)

EIS is a property accountability system for all Coast Guard-owned electronic equipment. It is used as a configuration status accounting tool at the HQ level and is

TABLE A-2
CURRENT CONFIGURATION STATUS AND PROPERTY ACCOUNTING SYSTEMS

System	Basic commodity	HQ proponent	ICP proponent	Shipboard management proponent	Standard terminal access	Shipboard input	Configuration status accounting system	Property accounting system
CALMS	HM&E	G-E	SICP	Engineering officer	No	Manual	Yes	No
EIS	Electronics	G-T	E/GICP	EMO	Yes	Automated	Yes	Yes
BOSS	HM&E	G-E	SICP	Engineering officer	No	Manual	Yes	No
Cutter system file	HM&E	G-E	SICP	Engineering officer	No	Manual	Yes	No
PPA	General purpose equipment	G-F	None	Not specific (usually F&S warrant officer)	Yes	Automated	No	Yes

Note: E/GICP = Electronics General Inventory Control Point, EMO = Electronics Maintenance Officer, F&S = fiscal and supply, G-T = Office of Engineering, G-F = Office of Engineering, G-I = Office of the Comptroller, G-L = Office of Command, Control and Communications, SICP = Inventory Control Plant, ICP = Ship's Inventory Control Point

manually input to the ERPAL. EIS is currently replacing the Electronics Installation, Change, and Maintenance (EICAM) system.

Personal Property Accounting (PPA) System

The PPA is an allowance and inventory system for general-purpose property. It is managed by the G-FLP and documents physical accountability according to Federally mandated requirements. It does not support any maintenance or supply requirements, nor is it used as a configuration status accounting tool.

Configuration Change Reports

The Comptroller Manual requires the submission of configuration change reports for the following reasons:

- Previously authorized equipment or equipage additions, deletions, or changeouts have occurred.
- Obvious errors and/or omissions in allowance documents are discovered.

Changes to the EIS system are made to the Equipment Item Record (EIR) when allowance or item data changes. These changes are then forwarded to the E/GICP to update the ERPAL. Changes in allowance documents governing HM&E configuration status accounting are reported directly to the SICP.

Accuracy of Data

The current method for ensuring the accuracy of a vessel's configuration is a validation, assisted by the ICP as directed by the Comptroller Manual, that occurs every 3 – 5 years. This validation is a reconciliation between the equipment on board a vessel and the configuration or property documentation and often occurs during a major maintenance availability. Other than the configuration validation process, no other inspection or validation process is scheduled to ensure accuracy or policy compliance. The role of the newly activated MLCs as it relates to periodic inspections or sample validations of the vessel's configuration status accounting documentation remains undetermined. While the current directive indicates a Regional Inspector will be responsible for ensuring policy compliance, it does not specifically address the supply policy areas included in the inspection program.

ANALYSIS OF CONFIGURATION STATUS AND PROPERTY ACCOUNTING SYSTEMS

In order for a shipboard allowance program to be effective, accurate configuration data are needed along with a detailed maintenance plan for each system, equipment, and equipage authorized for the ship. Accurate configuration status accounting, especially at the system and equipment level, is a primary factor in achieving effective supply and maintenance support.

Configuration Change Reports

The Comptroller Manual does not sufficiently address the conditions under which revisions and corrections should be made to configuration documentation. The shipboard staff is required to interpret the conditions for submitting a change report and decide whether they apply to the situation at hand. With all other demands on time taken into consideration, more often than not, the decision is that a change report is unnecessary.

Our observation is that the shipboard staff feels it has little incentive to submit the change report since the change in the allowance of repair parts and spares to support the equipment is unlikely to occur very quickly. Furthermore, the shipboard staff is aware that requirements for repair parts and spares are going to be filled by local purchase for the foreseeable future and preparing a configuration change report has little benefit. Finally, the responsibility for preparing the document rests with the maintenance staff and they have little spare time for extra paperwork.

The detrimental result from not submitting configuration reports is that the ICPs are precluded from providing supply and maintenance support. Since the type and quantity of equipment/equipage are the basis for determining supply and maintenance support, an item that is not included on an allowance list receives neither a preventive maintenance schedule nor an allowance quantity of repair parts.

Accuracy of Data

Our research indicates that equipment and equipage configuration data are inaccurately maintained, resulting in differences between actual and documented equipments and equipage on board the vessel. This imbalance between documentation and on-hand equipment is the result of deficiencies in some

shipboard configuration management policy and implementation of others. For example:

- No single configuration status accounting policy or set of procedures exists at the shipboard level. This results in confusion as to what items are to be reported, how to report them, and which configuration status or property accounting system to use.
- The current time intervals between validations is too long, and the lengthy interval results in insufficient review of the vessel's configuration and supporting documentation. Internal validations of the vessel's configuration by comparing the on-hand equipment to the configuration and equipment accounting documentation are conducted too infrequently if they are conducted at all.
- An inordinate amount of time is currently consumed by maintaining separate allowance and configuration/property management systems as is being done for electronic equipment under ERPAL and EIS.

Both the allowance and the configuration/property systems require contemporaneous accounting of additions, deletions, and modifications and accurate data assimilation and maintenance. Both require constant reconciliation of on-hand balances and documentation as well as the identification and incorporation of those items that are on hand but not documented. Without the continuous monitoring and updating of the documentation, the accuracy of these systems is questionable.

We believe that a significant part of the configuration status accounting problem results from lack of central control. Aboard ship, the systems are maintained by different functional users. This lack of central control for configuration status/property accounting and allowance documentation at the shipboard level results in nonproductive duplication and frequent omission of documentation effort. Centralizing the management and administration of configuration status/property accounting and allowance documentation in a single department would provide the vessel with one reference point for all documentation changes both internally and externally.

CURRENT AUTOMATED SYSTEMS SUPPORT FOR SHIPBOARD SUPPLY

The Coast Guard standard terminal is the primary automated data processing equipment. It consists of networked minicomputers on board several classes of Coast Guard vessels (down to the Bear Class) and at most shoreside activities. At the shipboard level, the standard terminal supports the EIS; PPA; the Automated

Requisitioning Management System (ARMS), which provides MILSTRIP interface; and the Shipboard Computer Assisted Maintenance Program (SCAMP). The systems have different HQ proponents and are designed to meet particular control and information requirements.

- EIS is a project sponsored by G-T to provide accounting for electronics equipment aboard ship and at shoreside activities. The information in EIS is used by the E/GICP for preparation of the ERPAL. A preventive maintenance system, either as a stand-alone or subsystem, is under development to complement EIS. Additionally, a design effort is under way to automate the posting of the ERPAL to the standard terminal.
- PPA is a project sponsored by G-F that accounts for personal property aboard ship and shoreside. The property recorded in PPA is generally administrative, i.e., furniture, office machines, etc.
- ARMS is another G-F project that provides the automated capability, Coast Guard-wide, to transmit requisitions to all ICPs. It serves all units and commodities. Currently, its output reports are generally limited to listings of transactions.
- SCAMP is a project sponsored by G-E that was originally intended to automate the preventive maintenance and parts inventory on board a vessel. The data in SCAMP are loaded from the CALMS documentation manually using the CALMS computer printouts.

Other nonstandard systems exist, mainly at the District levels. These systems are locally developed or contracted for and are operated on various types of personal computers. Among the District logistics applications are project monitoring, budget programs, and some inventory applications. Most nonstandard logistics applications at the Districts are likely to be discontinued as the staff logistics tasks are transferred to the MLCs.

ANALYSIS OF CURRENT AUTOMATED SYSTEMS

The Coast Guard's automated systems for supply support, as previously outlined, are a result of current Coast Guard commodity-oriented supply support structure and policy. The automated systems reflect the commodity-oriented, vertical control. They are not designed to share any information between systems. No mechanism exists through which any level above the shipboard can accomplish any automated communication with these shipboard systems or perform any management review or oversight by direct inquiry of files. Of the vessels we visited,

a common complaint was that too few standard terminals were available on board and too much time was required to enter the CALMS data through a keyboard.

Several functional duplications also exist between these shipboard systems. Additionally:

- The CALMS, ERPAL, EIS, and PPA systems all perform a type of equipment management function in that they all reflect assets that are currently on board a vessel. While the format for each of these equipment records is different, they have practically the same information requirements and could provide information interchange if they were a single data base.
- Both SCAMP and the proposed EIS scheduled maintenance modules perform the same function of scheduling preventive maintenance.
- Each system is independent and individually maintained. For example, CALMS updates are printed from a computer at SICP, sent to a vessel with SCAMP capability, then manually loaded to the standard terminal system. Both the SCAMP system and the CALMS are completely independent systems maintained by different activities, yet the CALMS input is essential to the operation of SCAMP. The manual data input effort is very labor intensive and inherently prone to error.
- The inventory management function of SCAMP, which currently is only used for CALMS, could also be used with the ERPAL system and as a basic automated stock accounting system.

We believe that the independent, commodity-oriented, and vertically controlled approach to systems development is expensive and presents a barrier to better supply management. The basic supply- and maintenance-related supply functions are alike for HM&E, electronics, and general supply items. Little benefit is derived from developing systems that duplicate basic functions to accommodate small, unique differences. Logical links that exist between shipboard supply and maintenance should be present in the single automated logistic system supporting the supply and maintenance operations.

Without a policy change at the HQ level that places the responsibility for automated logistics system's functional requirements at one office, a single, comprehensive automated logistics system is not possible.

APPENDIX B

CONCEPTUAL ORGANIZATIONAL STRUCTURE FOR INTEGRATED SUPPLY AND MAINTENANCE MANAGEMENT

INTRODUCTION

Integrated management of the supply and maintenance function contrasts sharply with the current organizational structure that separates responsibility for the supply function from responsibility for a commodity-oriented maintenance function. The maintenance function depends upon the supply function to provide spares and repair parts and the supply function depends upon the maintenance function to identify requirements for spares and repair parts, and independent organization of the support structures for each function prevents the adequate integration that their relationship requires. Organizational integration of the supply and maintenance functions at each level above the ship recognizes the interdependency. This support structure promotes the interactive planning and execution of the functions and takes the technical burden of this task off the ship. The ship's staff, relieved of the technical burden, is able to concentrate its full attention on the ship's operational requirements.

FUNCTIONAL RELATIONSHIP

If the supply and maintenance functions (including responsibility for procurement that facilitates both functions) are not organizationally integrated, support policy and execution decisions of one function are unlikely to consider the impact on the other function. For example, a maintenance decision that makes circuit board replacement an organizational level maintenance task and their repair a depot level maintenance task establishes supply support requirements to stock replacement boards at the organizational level and repair parts at the depot level. Performed independently, maintenance planning will occur early and will most likely consider the maintenance capability at the organizational and depot levels in order to make maintenance repair decisions. In most instances, supply support planning will not begin until maintenance planning is complete and, typically, after the equipment is fielded. In comparison, the maintenance decision on where repairs

are made represents a small portion of the wide range and great quantity of supply-related maintenance data and interaction necessary to adequately translate maintenance decisions into supply support requirements. Without continuous interaction between the maintenance function and supply function, integrated management of the functions is extremely difficult if not impossible.

ORGANIZATIONAL STRUCTURE

Interaction between the supply and maintenance functions at levels above the ship is optimally facilitated through organizational integration of both functions. In an integrated supply and maintenance organization, maintenance engineering, maintenance planning, and maintenance execution can coincide with supply management coding, supply planning, and supply execution to successfully provide initial provisioning, start-up pipeline stocks, and sustaining supply support. The Coast Guard cannot realize such integration, however, as long as the supply and maintenance functions are independently organized first by function and then again by commodity. A logical approach to integrate supply and maintenance management, therefore, involves centralization of the individual functions through organizational integration of Headquarters (HQ), HQ units, the Maintenance and Logistics Commands (MLCs), and the District support units. With the supply and maintenance functions organizationally integrated at each level of the support structure above the ship, vertical integration is established through a technical line of responsibility that extends from the HQ level to the ship. The structure optimizes support to the ship while providing channels for technical data feedback to levels above the ship for identifying and resolving systemic problems. The support structure is shown in Figure B-1. Each level of this support structure is described in the following paragraphs.

Headquarters

Coast Guard Headquarters consolidates the responsibility for supply, maintenance and procurement policy, oversight, and review under a single office. That office develops policy that focuses the supply system and maintenance program on support of the operating units instead of on the individual commodities. The unique management requirements of certain commodities, such as aviation and electronics, are integrated in standard policy and incorporated into standard operating systems. HQ establishes performance objectives, measurements, and

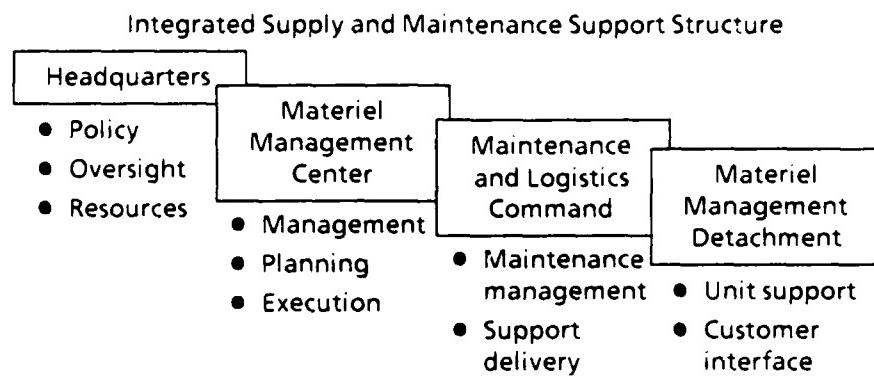


FIG. B-1. TECHNICAL RESPONSIBILITIES OF COAST GUARD CONCEPTUAL SUPPORT STRUCTURE

standards to evaluate the management of the supply, maintenance, and procurement functions. Based on that evaluation, the HQ office plans and allocates resources to accomplish specific supply, maintenance, and procurement program objectives. The HQ office serves as the proponent for logistics systems aboard the ship and for the functional system requirements that provide performance information for review and analysis to determine compliance, system quality, and the effectiveness of policy. As systems sponsor, the HQ promotes standardization of logistics data and compatibility of logistics systems.

Materiel Management Center

In the conceptual organization, the Inventory Control Points (ICPs) and HQ supply planning, maintenance planning, and maintenance engineering activities are combined into a single supply and maintenance management activity. The resulting organization is more appropriately called a Materiel Management Center (MMC) because it combines the functions previously performed by commodity-oriented ICPs, HQ supply and maintenance planners, and Headquarters equipment managers.¹ The MMC provides for interactive engineering, planning, and execution of both the maintenance and supply support of end items. The MMC is guided by supply, maintenance, and related policy direction provided by the single

¹Formally chartered Project Managers are an exception. They are assigned to the HQ Office of Acquisition. The MMC provides integrated supply and maintenance support planning to the Project Managers.

Headquarters office described above. The MMC, as the single integrated manager of the supply and maintenance functions, is the Coast Guard's "single face" to the Other Government Agencies (OGAs) that provide supply and maintenance support and receive materiel management input on the Coast Guard's peacetime and mobilization support requirements. The MMC is the highest level of supply and maintenance planning for support to the operating units and the highest level organization providing technical oversight of execution and management of support to the operating units.

The MMC's major maintenance and supply related responsibilities are described below. Supply management responsibilities include the following:

- *Provisioning* – Plan and execute the process for determining and acquiring the range, quantity and distribution of support materiel necessary to operate and maintain both major and minor acquisition end items for an initial period of service. Initial planning begins when a need for new or replacement end items is identified. The process is complete when support materiel or firm orders for that materiel are in place. Optimally, completion occurs at the same time that the end item becomes operative.
- *Cataloging* – Administer the processes required to identify OGA item manager responsibility; and provide for Coast Guard-unique item identification, classification, stock numbering, and documentation in order to establish item identity and interchangeability and to facilitate standardization and supply operations.
- *Allowance Management* – Manage all phases of development and maintenance of allowance lists and initial outfitting lists of equipment, accessories, maintenance parts, and consumable supplies required for equipment installation and for sustained materiel support of mission-oriented end items and maintenance support activities; ensure that allowance documentation reflects all maintenance-worthy equipment and identifies each maintenance-significant part, allowance quantity, and management coding to properly perform the supply and maintenance functions; develop methods for automating shipboard allowance item usage data collection, change request and update processes.
- *Configuration Status Accounting* – Provide the configuration status accounting information that is needed to manage property, equipment, and equipage configurations effectively, including a listing of the approved configuration of each operational unit and the status of recommended configuration changes.

Maintenance management responsibilities of the MMC include the following:

- *Engineering* – Develop and update maintenance concepts, criteria, and technical requirements during product development if applicable, and provide initial acquisition, modification, or overhaul planning for application during operational phases of Coast Guard end items; provide technical review and guidance on provisioning, allowances, and configuration status accounting; perform technical analyses and make the technical decisions necessary to develop a maintenance plan and accomplish provisioning, allowance management and configuration status accounting; and provide technical advice to Coast Guard equipment managers, OGAs, and contractors.
- *Maintenance Planning* – Develop a maintenance plan that describes requirements and tasks to be performed to achieve, restore, or maintain the operational capability of an end item.
- *Major Overhaul and Repair* – Provide planning and execution for equipment overhaul, repair, rebuild, and calibration services that have not been designated for MLC responsibility and are economically achieved through a centralized operation; and provide augmentation repair and maintenance support.

Additional MMC responsibilities that facilitate supply and maintenance management include the following:

- *OGA Liaison* – Monitor supply and maintenance performance of items that are managed by OGAs; and coordinate with OGAs to facilitate and improve interservice support of Coast Guard operations and to determine supply and maintenance mobilization requirements.
- *Contracting* – Serve as the central contracting authority with responsibility for planning and executing the procurement program in support of equipment projects that are not designated for major acquisition program management.
- *Logistics Systems* – Review functional system requirements for supply, maintenance, and procurement systems at the shipboard level to include property, equipment, and equipage accounting and reporting systems, allowance management systems, and the Automated Requisitioning Management System; and ensure that shipboard logistics systems comply with Military Standards.
- *Stock Fund Management* – As the retail stock fund home office, manage the stock fund program and budget system, perform accounting, and report on supply-related finances.

- *Customer Assistance* – Provide customer assistance to all Coast Guard units to include:
 - ▶ Monitoring Casualty Reports to identify supply and maintenance trends or deficiencies.
 - ▶ Expediting delivery of spares and repair parts to support mission critical requirements.
 - ▶ Providing technical assistance in maintenance, supply and procurement matters.

Maintenance and Logistics Command

The current MLC structure integrates the supply, procurement, and maintenance functions organizationally in the Vessel Support Division. Separate Ships Repair and Electronics Maintenance Detachments are located shoreside. Integrated management at this level is provided by the MLC's consolidation of maintenance and supply responsibility for hull, mechanical and electrical equipment, and electronics equipment; the integration of maintenance planning, maintenance-related supply and procurement; and the performance of supply inspections. Integrated management, in turn, promotes continuity and consistency in oversight and control of the supply and maintenance functions. The MLC evaluates automated systems operations and provides systems operations assistance. It is responsible for configuration control including the implementation of alterations and modifications, and supply inspection enforcement of configuration status accounting, reporting, and validation. Allowance Change Requests (ACRs) and Configuration Change Reports (CCRs) flow through the MLC for review and analysis prior to going to the MMC. Finally, operating expense funds for reimbursement of stock-fund-financed replenishment of mandatory allowances is centralized at the MLC.

Materiel Management Detachment

The Materiel Management Detachment (MMD) is an organizational concept that extends integrated supply and maintenance support to shoreside installations. The MMD represents a consolidation of the Ships Repair Detachment's and Electronics Maintenance Detachment's functions and addition of a supply management capability for shoreside cutter support. Other MMDs could be formed by organizing responsibilities in existing units such as Support Centers and Groups into active

direct support roles for Area and District cutters and equipment. The maintenance role is one of technical assistance and augmentation for the performance of scheduled services. The supply management role, as a minimum, includes expediting and facilitating procurement, storage, and distribution of supplies, spares, and repair parts required in home port, while under way, or at the next port of call. The MMD is also responsible for supply management of spare equipment, insurance or nondemand-supported parts, and consumable supplies such as paint and petroleum products.

SHIP

Shipboard supply management involves the supply support functions of supply control (full range of items), maintenance-related supply, equipment and equipage accounting and reporting, budget and budget execution, purchasing, and automated supply systems operations. The supply support functions are centralized under the shipboard supply officer or, absent a supply officer, the Executive Officer.

CONCLUSION

Management of the supply and maintenance functions in the Coast Guard is best accomplished in an organizational structure that places them under a single office at the HQ and provides for implementation and review of operations in a technical support channel that extends to the shipboard level. From top to bottom, supply and maintenance management is a continuum of policy and procedures rather than islands of support to the operating units.

The shipboard level represents the lowest level of integration of general supply, maintenance-related supply, and attendant configuration status/property accounting and reporting subfunctions. Integration of the subfunctions of supply and maintenance management at levels above that of the ship provides the policy, planning, execution, and review processes that support the shipboard supply officer and the maintenance officers and release them to concentrate on their responsibilities for supporting the ship's operational missions.

The division of supply and maintenance management functions among the various Coast Guard levels is shown in Table B-1 for the conceptual organization described in this appendix.

TABLE B-1
RESPONSIBILITIES FOR COAST GUARD SUPPLY AND MAINTENANCE FUNCTIONS UNDER CONCEPTUAL CENTRALIZED ORGANIZATION

HQ	MMC	MLC	MMD	Shop
<ul style="list-style-type: none"> Supply and maintenance policy oversight^a review^b Automated logistics systems advocacy^b Retail stock fund policy^b Procurement policy oversight and review Performance review and analysis^b Project Management for major acquisitions 	<ul style="list-style-type: none"> Supply management Supply control Maintenance engineering^b Maintenance operations management (depot level)^b Maintenance performance (depot level)^b Functional system requirements^b (supply, procurement) <ul style="list-style-type: none"> Property equipment equipment accounting and reporting system^b ARMS^b Retail stock fund operations (home office) <ul style="list-style-type: none"> Supply-related financial management reporting Automated stock fund management and accounting Procurement program planning and execution^b <ul style="list-style-type: none"> Equipment projects MILSTRIP requisition review and reporting^b OGA supply performance Customer assistance^b <ul style="list-style-type: none"> CASREP monitoring Spares parts expediting 	<ul style="list-style-type: none"> Supply inspections Maintenance operations management (CSMP) Maintenance performance (CSMP) Functional system requirements (unit level) <ul style="list-style-type: none"> Review Operations assistance Retail stock fund operations (branch office)^b <ul style="list-style-type: none"> Budget development, execution, review Central funding mandatory allows Procurement execution <ul style="list-style-type: none"> CSMP support Area equipment projects Customer assistance <ul style="list-style-type: none"> CASREP management Visits 	<ul style="list-style-type: none"> Supply control <ul style="list-style-type: none"> Insurance, backup, slow-moving items Maintenance performance^c Maintenance assistance Automated logistics system operations^b <ul style="list-style-type: none"> UFS Property, equipment, equipment accounting and reporting Procurement assistance^b <ul style="list-style-type: none"> Spares parts vendor locator Underway expeditor NSN research Customer assistance^b <ul style="list-style-type: none"> Spares parts forwarding Interface to MLC and MMC 	<ul style="list-style-type: none"> Supply control^c <ul style="list-style-type: none"> High-use items (centralized supply and storage/management) Mandatory inventories replacement Maintenance performance Automated logistics system operations^b <ul style="list-style-type: none"> SCAMP Property, equipment, equipment accounting and reporting (configuration status accounting) Procurement execution <ul style="list-style-type: none"> Purchase requests Underway purchase reporting Customer assistance <ul style="list-style-type: none"> Assistance requests Liaison visit coordination

Note: ARMS = Automated Requisitioning Management System; CASREP = Casualty Report; CSMP = Current Ships Maintenance Program; NSN = National Stock Number; OGA = Other Government Agencies; SCAMP = Shipboard Computer Assisted Maintenance Program; UFS = Unit financial system.

^a Additions, expansions, enhancements

^b Major overhauls and repair that is not designated as MLC responsibility

In summary, the conceptual organizational structure is designed to accomplish the following:

- Integrate the supply and maintenance functions
- Standardize the supply and maintenance support system
- Create an MMC-style organization

- Enhance operational unit support
- Establish a performance review capability
- Implement a shipboard supply and maintenance management program.

APPENDIX C

COAST GUARD MANPOWER AND TRAINING PROGRAM FOR SUPPLY MANAGEMENT

INTRODUCTION

The success and efficiency of any organization is critically dependent on its people. Equipment and procedures give a system its capability; people operate the system to realize its capability. The ability of an organization's people to properly operate their system is a product of adequate manpower planning and resourcing, and training of the manpower to the correct level of competence. In the Coast Guard, both manpower and training are insufficient for effective management of the supply support system in the future.

Manpower Planning and Resourcing

Manpower planning is a vital factor in a systemwide supply management concept. It plays a major role in the decision-making process that seeks answers to questions such as:

- What tasks need to be done?
- Who should do which of the tasks?
- What competence level and background is required?
- Where does the manpower come from?
- How is the manpower made and kept proficient?

In today's environment of cost-effective manpower resourcing and personnel budget constraints, these seemingly simple questions, in fact, become increasingly complex. To underestimate the issue of proper manpower planning is to undermine supply management. Manpower is the foundation upon which the system is built and is ultimately the factor that will decide its success. The right person in the right place at the right time is the best assurance that the supply support system will work as designed.

Manpower Training

Once a supply management planning program is established and manpower resourcing begins, a detailed and progressive training program gives it life and continuity. Training plants and nurtures the ability and competence of supply personnel to perform to a desired standard. Every military organization emphasizes its training programs, but that alone is not enough. The front-load concept, i.e., "teach them everything they need to know before they report," assumes that what is taught is fully retained and is all the formal instruction the person needs. Training must be directed at the right person at the right time in the right amount, and done so as a continuous process.

Effective supply management comes from effective manpower, and for manpower to be effective, training must be effective. All interlink; if one part fails, then the others are affected. It is an easy formula but one that is often overlooked or miscalculated.

Current Situation

The Coast Guard's manpower and training program is marginally adequate to support the present mode of supply support operations. Stress points are appearing as the Coast Guard's missions and responsibilities increase. Dissatisfaction with supply support is voiced and sensed. Operational capabilities and mission schedules are jeopardized by shortfalls in supply responsiveness. Quick-fix solutions are proposed and, when tried, only precipitate new problems. Some tend to blame the "system," while others express their frustration in terms of the system's managers and operators. The pressure is felt by those responsible for the supply support system as well as by those who are its customers.

Manpower and training are neither the sole cause of the supply support problems nor the only solution, but they represent a critical part of the solution. The remainder of this appendix discusses a supply management manpower and training program for the Coast Guard's military members, describes shortfalls in the current program, and makes recommendations to bring about the needed improvements. Although the primary thrust of this report is shipboard supply management, the fundamental issue of manpower and their training permeates all levels of the supply

support structure. To resolve the problem for the shipboard-level operation requires systemwide application of supply management.

The final section of this appendix is a discussion of the development of the logisticians to implement an integrated logistics support concept of management in the Coast Guard. If the Coast Guard is to fully adopt the principles of integrated logistics support and adhere to them, it must institute some accompanying changes to the current manpower and training practices, particularly for those who provide the supply management expertise. Current practices do not have to be totally overhauled; we present a number of workable and feasible concepts that, when implemented, should enable the Coast Guard to improve its supply support to the operating units and to support an integrated logistics support style of management for new system acquisitions.

ANALYSIS OF CURRENT SUPPLY OPERATIONS

Currently aboard the major cutters, supply operations are performed by enlisted Storekeepers (SKs) under the managerial cognizance of a fiscal and supply (F&S) warrant officer. On smaller cutters and boats, the senior SK serves as the supply chief. Supply department operations generally consist of requisitioning and general stores control, with the functional departments responsible for their own repair parts support. Supply also provides such services as personal property accounting, pay records, travel claims, and several other administrative duties. This structure has enabled the various functional departments to maintain a certain degree of independence and flexibility with regard to supply matters. Even though this organization has proven to be marginally adequate in the past, it will not serve the Coast Guard in the future. The current decentralized approach to shipboard supply control is neither a procedurally efficient nor cost-effective way to support increasing operational commitments and management requirements.

Shipboard Officer Manpower

At the present time, the supply officer billet aboard a large cutter is filled by an F&S warrant officer. These warrant officers previously served as enlisted SK or subsistence (SS) personnel. Although eligible for commission at the grade of E-6, the average F&S warrant officer is commissioned at the 14-year mark. They receive no formalized training or so-called "knife and fork" school to officially assimilate them into the officer ranks and bridge the officer-enlisted frame of reference. [Exceptions

are prior SS-rated warrant officers who are sent to a HQ or District unit for 6–12 months of training in the supply and fiscal areas on matters that they were not exposed to as enlisted personnel. Generally, this training is provided as on-the-job training (OJT) and is not formally structured although some Districts have a training plan.] Once assigned to a ship, the F&S warrant officer serves as the supply officer and is responsible for supervising local purchasing and requisitioning, supply control for general stores, supply department budgets, and the performance of the SKs and SSs. The other functional departments, however, perform their own inventory control, maintain storerooms and allowance data, and, for all intents and purposes, act as their own supply departments. This division of supply responsibility limits the F&S warrant officer's experience base.

After sea duty, F&S warrant officers rotate back to shoreside billets and, with few exceptions, are not assigned further sea duty. Since the F&S warrant officers are not policy makers or supply planners, they are not apt to influence decisions affecting support. They receive no programmed initial, mid-level or refresher training unless they seek out short courses on specific topics. The F&S warrant officer's career training peaks early and any additional professional development is dependent on their own interests and training received on the job.

Shipboard Enlisted Manpower

The SS and SK personnel come from nonrated strikers. They attend the 10-week "A" school at the Training Center, Petaluma, CA, and thereafter only receive short courses on specific topics. Considering that only about 15 percent of SKs are on sea duty at any time, an SK could only go to sea once, twice, or possibly not at all. According to the SK assignment officer, sea duty has been removed as a primary requirement for promotion. Because it imposes longer periods away from home, sea duty has little incentive.

Aboard ship, the SK's responsibilities are broad and diverse. They handle primary supply matters such as requisitioning, personal property accounting, automated data processing (ADP) systems entry, and receipt and stowage of general stores. They are also required to perform a number of nonsupply or administrative duties such as disbursing and payroll functions, personal travel/transportation, household goods transportation, and correspondence. While examining Commandant Instruction M1414.8A, *Storekeepers Practical Factors*, it is easy to

surmise that the SK's are "jacks of all trades"; often, they are concurrently "masters of none."

Conclusion

Present warrant officer and enlisted manning at the shipboard level has been marginally adequate to support the ship's mission in the past. Short-term quick fixes to operational problems can cause the system to survive, but prevent real and lasting improvement. The Coast Guard's capabilities and operational missions are in a changing state, and a more efficient supply support system is needed to accommodate the dynamic environment. A key feature of the system is centralization of supply management aboard ship and at each level of supply support above the ship. This will involve the implementation of the concepts of Configuration Status Accounting, Mandatory Allowances and Allowance List Maintenance, and the policy and procedures to support the successful operation of a central supply department with overall responsibility for all matters and issues of supply. A formalized manpower and training management program for officers, warrant officers, and enlisted specialists is needed to provide the personnel resources to plan and execute the supply support system.

MANPOWER AND TRAINING PROGRAM FOR SUPPLY MANAGEMENT

Requirement for Supply Management Skills

Planning, organizing, executing, monitoring, and evaluating the system that provides supplies and equipment to the Coast Guard's operational units requires high-order management skills. The supply function has evolved rapidly as a separate discipline of the total logistics process as the complexity of equipment, competition for material, range of operational commitments, and costs of vessels and aircraft have increased.

In less complex times, officers responsible for maintaining the equipment were also responsible for ensuring the repair parts were available. Their primary interest was in maintenance, and they relegated the support aspect to a lower priority. Along with the realization that a good repair part support process helped to keep maintenance on track came the need for an individual to concentrate on getting and storing those parts near the equipment.

At the intermediate stage of evolution is the concept of a maintenance-oriented repair parts system that focuses on developing a supply support program to suit the particular category or commodity of equipment being maintained and storing those parts in the space controlled by the maintenance manager. The Coast Guard's supply system is at this stage of development. It is essentially focused along equipment with its inventory control points (ICPs) oriented to electronics, aircraft, ship hull/mechanical/electrical (HM&E) and aids-to-navigation/buoy items of equipment and equipage.

At the advanced level of evolution, supply is treated as a separate and maintenance wide support system. It is independently managed and directed by an individual trained and experienced in all facets of the supply process including inventory control, financial management, procurement and acquisition, distribution and the professional development of subordinate personnel. At that stage, supply management is not a part-time or ancillary responsibility. The supply manager is a decision-maker, director, and officer responsible for having the needed general supplies, repair parts, spares, and equipment at the right place to support commitments on time and at lowest cost.

A HQ directed manpower and training management program for the Coast Guard is key to reaching the advanced level of supply management.

Officer Resource

Source Analysis

The Coast Guard has no program for developing officer-level supply management experts. Those experts cannot be appointed; they must be developed. The ideal starting point is at the shipboard level where young officers become experienced with operational level support requirements and develop a frame of reference that they can take with them to successively higher levels. In order for the structure above the ships to provide effective support, its staff-level supply management officers must understand the shipboard supply management requirements. The current program utilizing F&S warrant officers as supply officers does not generate the necessary officer-level supply management experts needed at all levels of the logistics support structure. Experienced SKs become warrant officers and are assigned to a ship where they put their experience to use. After 2–3 years they leave the ship, take their expanded experience to a shoreside

assignment, and in a few more years, are eligible to end their Coast Guard careers. Thus, their shipboard experience has been underutilized. The ship should be the initial and not the final training ground for developing supply management officers. A natural career progression would then evolve as the officers move up in the logistics support structure heirarchy to positions of greater responsibility and management complexity.

Conclusion

The career and training path for junior officers should start at the shipboard level. While the F&S warrant officers continue to fill certain sea billets, junior officers should be supply department heads on the larger cutters and F&S warrant officers should be the assistant supply officers.

Warrant Officer Resource

Source Analysis

The current F&S warrant officer program is sound in that it capitalizes well on the enlisted supply talent. However, it has some inherent flaws that are created by the enlisted structure it was designed to capitalize upon. One such flaw is the practice of commissioning SS personnel and then attaching them to a District or HQ unit for 6 – 12 months training before reporting to the ship. Unless the training is specific, intense, and structured, it cannot adequately prepare personnel who have spent their careers in food service for the responsibilities of supply management. The result of this procedure is an F&S warrant officer who is extremely capable in the area of food service and who is likely to devote an inordinate amount of time to the subsistence program. To stop commissioning the SS rating is not the solution. The answer lies in the development of a structured training program before assigning them to a ship.

A second flaw in the program exists with the SKs who are commissioned as F&S warrant officers. This weakness is rooted in the SK enlisted career path. Unlike their SS counterparts, the SKs receive no formalized training upon commissioning since they are assumed to be proficient in fiscal and supply matters. In fact, the SK may not have been at sea for quite some time or, in a worse-case scenario, may not have been to sea at all. Furthermore, the number of nonsupply duties – payroll, travel, etc. – that the SKs must handle can eventually prevent

them from developing an adequate level of supply management expertise. The SKs can become identified with a nonsupply task, such as household goods processing, and spend a considerable portion of their duty time in that one area. The result is limited exposure to the mainstream supply control tasks. If selected to be an F&S warrant officer, these SKs are no better off than the SSs who have had no supply and fiscal experience. In fact, they are likely at a disadvantage because their rating officers expect them to be knowledgeable and experienced in supply matters.

Conclusion

The Coast Guard needs a detailed, up-to-date, formally structured (i.e., group-paced instruction accompanied by programmed OJT, rather than a total OJT or self-paced course) supply training program for SSs and SKs who are selected as warrant officers.

Enlisted Resource

Source Analysis

The SK rating suffers from three primary problems – the job description, the diluted emphasis on full-range supply support, and the career path. Evidence indicates that SKs have performed at an acceptable level in the past and would continue to do so if requirements remained constant or even lessened. However, changing times and increasing operational demands point to a need for improvements in efficiency and effectiveness.

Job Description. The current responsibilities of the SK are too broad and diverse. Payroll changes, household goods shipment planning, correspondence preparation, and travel processing are nonsupply duties that the SKs perform. During most work days, the SKs spend much of their time on those matters, and that time is taken away from supply tasks – preparing requisitions, performing inventories, and updating stock records. Realistically, SKs are more likely to help fellow enlisted personnel resolve a pay problem than they are to perform an inventory. While they view the inventory as important, helping shipmates is more tangible and gratifying and shipmates can be vocal while uninventoried storerooms are silent.

Over time, the SKs have been traditionally assigned a number of nonoperational tasks. The Navy utilizes five enlisted supply and administrative

ratings [Disbursing Clerk (DK), Ships Serviceman (SH), Storekeeper (SK), Personnelman (PN), Yeoman (YN)] to do tasks the Coast Guard has given fully or partially to the SKs. This does not imply that the "Coast Guard should do as the Navy does". The point here is that similar administrative functions are spread out over several enlisted ratings in the Navy, whereas the Coast Guard has overloaded fewer ratings with them all. While such assignments may have been efficient in the past, under the concept of centralized supply, the SK's effectiveness will decrease significantly and the support system will suffer as a whole. The nonsupply duties related to disbursing, household goods processing, transportation, payroll, and correspondence should be taken from SKs and given to other ratings. Continuing to perform such a range of duties detracts from the SK's ability to contribute to bringing about needed improvement in supply readiness, effectiveness, and accountability.

Deemphasis of Full-Range Supply Support. The current decentralized system tends to deemphasize the importance of supporting the full range of supply items needed aboard ship. Because much of the SK's time is devoted to nonsupply tasks, little time remains for stock control, budgeting, allowance lists, or requisitioning. Possibly the other departments recognize the competition for time and are reluctant to trust the supply department with their repair parts support. Conversely, the supply department head recognizes the shortfall in time to spend on mainstream supply tasks and has not pursued taking over the full-range support role. As a result, a majority of the supply items that support the ship's mission capability are the responsibility of maintenance and not supply managers. A centralized supply control operation brings changes in responsibilities that place the SK rating in a very important and highly visible direct support role for the total supply requirement.

Career Path. The third fault lies with the structure of the SK career path. No structured program of refresher training is available after "A" school for those SKs who go to sea in the middle of their careers. Of the roughly 1,400 SKs, only about 15 percent are actually on sea duty at any one time. Thus, an SK may have only been to sea once or possibly not at all. Since sea duty is not a requirement for promotion, the incentive to go to sea is lost. The problem is compounded when the SK is selected for warrant officer and is assigned to sea duty.

Conclusion

Managing the SK career program is a complex problem whose resolution is considerably influenced by the changes being made in the officer manpower and training management program. Along with managing the supply support system, those officers, in coordination with personnel program managers, develop appropriate task lists, training programs, and career paths for the enlisted specialists who perform the day-to-day supply operations. The experienced supply management officer, serving in a staff officer's billet at key points in the system, is an influential factor in developing the correct mix of tasks, the training plan, and the assignment pattern that produce the most contributory SK. Those supply management officers have a vested interest in the SK's development process because of their need for correct and continuous execution of supply support. The ultimate beneficiary of the program is the operating unit since its supply support is better managed and more responsive.

RECOMMENDATIONS

For the Coast Guard to have a supply system capable of providing responsive and cost-beneficial support to its operating units, the responsibility for planning, organizing, and directing the system must rest with a trained and professional group of supply managers. Although the warrant officers and enlisted personnel currently committed to the supply function are a significant part of the supply management group, their training and supply responsibilities are inadequate for the future. To achieve the required supply management capability in the Coast Guard, we recommend:

- That the Coast Guard establish a formal Integrated Logistics Support Manager career pattern that starts the junior officer as a Supply Management Officer at the shipboard operating level and progresses through command and staff supply, maintenance, procurement, and non-logistics assignments to the headquarters policy-making level. Concurrently, those officers who ascribe to this career pattern should carry an identifying specialty designator as an Integrated Logistics Support Manager.
- That the high endurance cutters/icebreakers have billets for a supply officer (grade 02/03) as the supply department head, and an F&S warrant officer as the assistant supply officer. Second, that medium endurance cutters have a billet for a supply officer (grade W3/W4)

- That Junior Officers selected to be the supply officer of a high endurance cutter/icebreaker and F&S warrants selected for assignment to sea duty attend a 5-8 week Supply Management Course designed for Coast Guard shipboard supply operations
- That an F&S warrant officer intern program be established on high endurance cutters/icebreakers. Second, that the assistant supply officer billet be the training location for the F&S warrant intern when the need exists for such training prior to assuming duty as a supply officer aboard a medium endurance cutter
- That all newly commisioned F&S warrants attend the Leadership and Management course at the Training Center, Petaluma
- That the task and performance criteria for the SK rating change to eliminate the nonsupply tasks to the extent possible and to add tasks and standards for centralized supply control of the full range of items
- That the services-type personnel support tasks transfer to a shoreside activity or, if retained aboard ship, to a personnel specialist
- That SKs selected for assignment aboard ship as the supply chief, and at a grade/responsibility level different than previously served, receive an orientation and refresher short course in first-line supervisor responsibilities for supply control operations.

Recommended Implementation Plan

Supply Management Officer/Integrated Logistics Support Manager (ILSM)

The ideal candidates for the Supply Management Officer track to the Integrated Logistics Support Manager (ILSM) career pattern are the officers who have majored in management science at the Coast Guard Academy and the business administration majors accessed each year through the reserve officer active duty program. The ILSM career pattern offers an opportunity to apply management and business theory to the special requirements of ship's support. Academy cadets should be exposed to the supply department's operations during training cruises so that they can appreciate the complexities of supply support and can evaluate ILSM as a career pattern.

It is important that the ILSM career pattern start at the shipboard supply officer level where the officer can experience the relationship of supply to other mission requirements and can realize that the supply process exists to support the

ship. Ships getting under way fully outfitted and with all equipment operational is the basic supply goal.

To fully develop the start point on the career pattern, a junior officer Supply Department head position should be established on the high endurance cutter/icebreaker classes. The billet should be authorized at the 02/03 grade level and filled by those officers who have completed a portion of their initial tour and the Supply Management Course. A Supply Management Officer would enter the ILSM career pattern after 12 to 18 months of active duty. The officer should attend a 5-8 week initial training course to introduce him to shipboard supply procedures and managerial auditing. Following the formal training, the officer would be assigned to a ship for 18 to 24 months as the supply officer. At that point, the officer has the basic qualifications as a Supply Management Officer, and becomes an ideal candidate to progress through an ILSM career pattern.

It is not imperative that supply officers on board a vessel be expert in every supply procedure. However, they do need to know how to audit those procedures to control the operation. Their initial training should be a version of the Navy's Supply Indoctrination for Line Officers (SILO) course tailored to the Coast Guard's centralized supply operation. The course should be taught at the Training Center, Petaluma or, as an alternative, as a special Navy SILO course at Athens, GA. The purpose of the course is to provide a foundation and an appreciation for the supply officer's management responsibilities aboard ship. Heavy emphasis is placed on accountability, pulse points/operating indicators, auditing skills, and formulation of a "big picture" outlook on the supply system. Officers leave the course with an understanding rather than a fear of the supply system and, more importantly, a knowledge of how to make it work for them. To further promote this "big picture outlook," the final weeks of the Supply Management Course should be devoted to a Coast Guard supply support system orientation designed to familiarize the officers with all levels of the logistics support structure from Headquarters down to the shipboard level. This orientation should include visits to the major activities at the various levels of the logistics support structure to permit establishing contact with the key personnel involved in the supply support system and to provide first hand information gathering. This orientation should be 1-2 weeks long and should include visits to the Navy Ships Parts Control Center (SPCC), the Coast Guard's Materiel Management Center (MMC), an Area Maintenance and Logistics

Command, and a Support Center performing Materiel Management Detachment (MMD) functions.

Assignment to a ship continues the development of the experience base. During the 18 to 24 month tour, the supply officers will have some period of mentoring from experienced F&S warrant officer assistants and, equally important, can also provide the internship training for new F&S warrant officers destined for a supply officer assignment aboard a smaller cutter. The mentoring process passes knowledge of details and practical problem solving from the warrant officer assistants to the new supply officers, and the internship passes the knowledge of supply management and operations auditing to the new supply warrant officers. Experiences become additive and the overall learning curve for proficient management is considerably shortened.

Fiscal and Supply Warrant Officer

Upon commissioning, all F&S warrant officers, regardless of SK or SS background, should attend an intensive, formalized, group instruction course that serves as an officer indoctrination course highlighting leadership and management principles and answering the simple question "What does it mean to be an officer?" In order to ensure that the only candidates sent to sea will be those who can handle the demands of the job, establishment of a special sea duty screening board should be considered. That board's purpose would be to screen all sea duty eligible F&S warrants and determine which candidates possess the potential for success at sea duty. Screening criteria should include factors such as previous supply management experience, past performance, leadership, demonstrated ability to adapt to new situations, and recent sea experience. Only the most qualified candidates should then be considered for assignment as the supply officer of a medium endurance cutter (independent duty); or as an intern on a high endurance cutter/icebreaker, with subsequent assignment to a medium endurance cutter as the supply officer upon completion of the intern program; or as the assistant supply officer of a high endurance cutter/icebreaker.

Since the concept of a centralized supply operations is new to the Coast Guard, it is vital that all sea-going F&S warrants, regardless of background, receive adequate training to efficiently operate in this new environment. F&S warrant officers selected for sea-duty should attend the same 5-8 week Supply Management

Course as the junior officers. A vital part of that course will be the final weeks dedicated to the Coast Guard supply support system orientation. At the completion of this training phase, the individual who has not had recent centralized shipboard supply operations experience should be assigned to a 12-month internship aboard a high endurance cutter/icebreaker as the assistant supply officer. This training serves as the OJT portion of the F&S warrant officer's training and provides him maximum exposure to centralized shipboard supply operations without the "full" responsibility of a department head position. Near the completion of the intern year, the warrant officer should be evaluated by the supply department head and executive officer to confirm his suitability to assume the responsibility of the supply officer of a medium endurance cutter.

If approved, the warrant officer completes his year on board and is reassigned to the supply officer billet on one of the medium endurance cutters, and a new intern is assigned to replace him. With the existing distribution of cutters to Areas/Districts, a permanent change of station move may not be required. The independent duty tour is a full 2 years, and at that point the warrant officer should be well qualified for assignments as an assistant supply officer, a supply officer of a shoreside support unit, an instructor at a training center, or a staff supply officer or to a future second tour of independent duty.

As centralized supply is implemented throughout the Coast Guard, the number of assistant supply officer billets used for the intern program and the length of the intern program could be reduced. SK's who are exposed to, and work in, a centralized supply environment should need less intern training after their selection to F&S warrant. At this point, the use of the screening board becomes critical in order to ensure a quality pipeline of F&S warrants assigned to sea duty and to identify those F&S warrants who will require the training environment of the intern program.

Enlisted Personnel

Implementation of full-range supply control responsibilities with no change in the tasks performed by the SKs would cause them to be overwhelmed. The SKs need to concentrate on supply matters, and thus all nonsupply or administrative-type duties should be eliminated to the extent possible from the SK rating. One possibility is to split the SK rating into two ratings, the SKs to handle materiel

functions and a new specialty to handle services support functions. A second possibility is to assign the services support tasks to existing personnel and administrative ratings, such as the yeoman. Still, a third alternative would be to shift these personnel support functions from the ship to a shore establishment. This shore unit could perform the personnel support functions for a squadron or group of ships. The existing Personnel Support Unit would be a logical choice to fill this role.

Because of possibly extended periods between afloat tours, a refresher training course for senior SKs going back to sea — and particularly those being assigned as a cutter's supply chief — should be developed. This course should be several weeks long and provide temporary duty training at the various organizations in the Coast Guard supply support system to cover all the functional areas of responsibility. It should provide the SKs with current supply and operating procedures and fully prepare them for their assignments.

LOGISTICIAN/INTEGRATED LOGISTICS SUPPORT MANAGER

Need

In its officer corps, the Coast Guard has few true logistics "experts" or specialists. It has no planned and progressive career path from any of its personnel accessions programs to develop a group of true Coast Guard logisticians. Perhaps in the past such expertise was not required, or no clear definition of what constituted Coast Guard logistics existed, or logistics was not viewed as a separate discipline. Changing times and economic practicality have caused the Military Services to look at logistics and those responsible for logistics as a major portion of mission capability and force readiness. Today's environment requires smart and effective logistics management to support multisensor equipment, sophisticated and complex platforms, and the complicated acquisition process. The Coast Guard needs a small group of logisticians whose backgrounds heavily reflect an array of assignments in supply management and maintenance management positions of ever-increasing complexity and responsibility. From this group come the managers of an integrated logistics support concept for future major system acquisitions and sustainment operations.

Source

In the course of fulfilling the primary responsibilities for supply management and maintenance management, Coast Guard officers gain interrelated experience with purchasing and contracting, budgeting and budget execution, property and equipment management, and personnel management, and those skills become an embedded part of their overall logistics management expertise. Coming from both the supply and maintenance career pipelines, the logisticians will provide the expertise that the Coast Guard requires at policy levels to successfully implement an integrated logistics support concept of management.

Development

A maintenance-oriented pipeline is discernable in the current manpower and training structure for the officers in naval, electronic, and aviation careers. No such developmental process exists for the supply management function although each of those career programs has a large and essential need for the materiel professional to manage the supply support system. Each career program relates to the other and together they are the essence of logistics. The Integrated Logistics Support Manager's career pattern requires the same formal progressive development process as that given to the maintenance professional.

With the advent of the supply officer position at the shipboard level, officers from both supply and maintenance programs progress to become logisticians. The supply manager and the maintenance manager exchange information about their specialities through executing the maintenance-related supply elements when they are junior officers. In the later stages of their careers, certain maintenance and supply officers should be identified as having the broad range of experience that distinguishes the Integrated Logistics Support Manager. Those officers are then assigned to positions of greater management complexity and responsibility at the Materiel Management Center, the Maintenance and Logistics Commands, Area Headquarters, Joint Staffs, and Coast Guard Headquarters. The logisticians are also the source for the Project Managers of major acquisitions.

Objective

The Coast Guard's officer management objective for the future should include a select cadre of officers with a progressive and developmental career pattern whose

ultimate senior-level contribution is as a logistician. A manpower and training pipeline for a core of integrated logistics support managers in a controlled career pattern will provide the supply expertise. In the development process, the exposure to the maintenance function hardens the logistics foundation and provides the balance to be an effective logistician. In the process of developing logisticians, the Coast Guard's need for supply management officers is fulfilled; and supply accountability and responsibility are established, maintained, monitored, and modified by competent and proficient supply experts.

Benefit

To fully develop and execute the program for Coast Guard logisticians requires enormous cooperation from every officer career program manager and some relinquishing of long-held traditions and beliefs. It is a complex and time-intensive process, one in which the top officials of the Coast Guard will have to reevaluate their long-term manpower practices, priorities, and philosophies. The benefit in the long-term is the reliability of the sustaining support system and the stability of the acquisition management process; in the shorter term, it is continuous improvement in the mainstream supply and maintenance functions as the concept of integrated logistics support becomes the fundamental management style for Coast Guard logisticians.

APPENDIX D

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AC&I	Acquisition, Construction, and Investment
ACR	Allowance Change Request
ADP	Automated Data Processing
APA	Appropriation Purchase Account
APL	Allowance Parts List
ARMS	Automated Requisitioning Management System
ASP	Acquisition and Support Plan
BOSS	Boat Outfit and System Support
CALMS	Combined Allowance for Logistics and Maintenance Support
CCR	Configuration Change Report
COSAL	Coordinated Ships Allowance List
DK	Disbursing Clerk
EECEN	Electronic Engineering Center
E/GICP	Electronics/General Inventory Control Point
EICAM	Electronics Installation, Change, and Maintenance
EIR	Equipment Item Record
EIS	Electronics Inventory System
EMO	Electronics Maintenance Officer

ERPAL	Electronics Repair Parts Allowance List
F&S	Fiscal and Supply
FLSIP	Fleet Logistic Support Improvement Program
G-E	Office of Engineering
G-F	Office of the Comptroller
G-FLP	Supply and Property Division, Office of the Comptroller
G-OSR	Office of Search and Rescue
G-T	Office of Command, Control, and Communications
HM&E	Hull, Mechanical, and Electrical
HQ	Headquarters
ICP	Inventory Control Point
ILSM	Integrated Logistics Support Manager
MEC	Military Essentiality Code
MILSTRIP	Military Standard Requisitioning and Issue Procedures
MLC	Maintenance and Logistics Command
MMC	Materiel Management Center
MMD	Materiel Management Detachment
OG-30	Operating Guide 30
OGA	Other Government Agencies
OJT	On-the-Job Training
PN	Personnelman
PPA	Personal Property Accounting
SAAL	Support Activity Allowance List

SCAMP	Shipboard Computer Assisted Maintenance Program
SF	Supply Fund
SH	Ships Serviceman
SICP	Ships Inventory Control Point
SILO	Supply Indoctrination for Line Officers
SK	Storekeeper
SOP	Standing Operating Procedure
SPCC	Ships Parts Control Center
SS	Subsistence Specialist
WSF	Weapon Systems File
YN	Yeoman

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<p>The development of supply management policy has historically been centralized at Coast Guard Headquarters but technical direction and execution have been decentralized. The three inventory control points receive technical direction from the Headquarter's program or support managers responsible for electronics, general, naval, aviation, and aids-to-navigation materiel. Execution is decentralized on board the cutters where spares and repair parts for electronics, naval, and ordnance maintenance are separately stored and managed by their respective department heads. The shipboard supply officer manages only general supplies.</p> <p>While this style of supply management has served the Coast for many years, several factors indicate a need for a more structured, efficient and centrally directed approach. More expensive and complex spares and repair parts require earlier and more extensive planning for provisioning, procurement, and replenishment. Cutters spending longer periods away from home ports and more restrictive procurement rules lessen the use of local purchase as a main source of supply. Audit and inspection reports indicate systemic problems in allowance management, materiel accountability, and supply support effectiveness.</p>					
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Our major recommendations for improving shipboard supply management are: (1) Centralize supply management, including allowance maintenance and configuration status accounting, for the full range of spares, repair parts, and general supplies under the ship's Supply Department. (2) Develop mandatory allowances of spares and repair parts that must be stocked on major cutters in addition to demand-supported nonallowance items. (3) Establish billets on selected cutters for an officer (02/03) as the supply department head, and a fiscal and supply/F&S warrant officer as the assistant supply officer; and on other cutters, establish a billet for an F&S warrant officer as the supply department head. (4) Establish a formal training program and career pattern for supply management officers and F&S warrant officers. (5) Designate a single Headquarters proponent for an automated shipboard supply management system.

Above the ship there are problems that occur because of the decentralized approach to supply management. While adoption of our recommendations will improve shipboard operations, additional changes are needed above the ship to achieve the full benefits of centralized management. We also recommend organization and function changes in the support structure above the ship to integrate supply, maintenance, and procurement management.

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